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BOLIVIAN TRADE AND BUSINESS COMPETITIVENESS (BTBC)

ENVIRONMENTAL REVIEW

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- Chemonics International’s Environmental and Natural Resources Practice Network provided research on the use of market standards to advance responsible business and trade practices and helped underscore the ability of consumers and markets to influence the environmental, safety, and socially responsible business practices of small- and medium-sized enterprises in Bolivia.

This report builds on the significant progress made to date by BTBC I to promote export-led economic growth and job creation by integrating environmental management as a core element of project and client enterprise operations. It offers constructive criticism and suggested corrective actions that are within the project's scope and the grasp, capacity, and interests of stakeholders and partners.

The findings and recommendations in this environmental review are those of the author and do not necessarily reflect the views of USAID, the Government of the United States, or the Government of Bolivia. Any and all omissions and errors are entirely the responsibility of the author.

Greg Minnick
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ACRONYMS

ARCo	USAID/Bolivia Rural Competitiveness Activity
BTBC	Bolivia Trade and Business Competitiveness project
CAINCO	Cámara de Industria, Comercio, Servicios y Turismo de Santa Cruz
CADEFOR	Centro Amazónico de Desarrollo Forestal
CADEPIA	Cámara Departamental de la Pequeña Industria y Artesanía
CDIC	Cámara Departamental de Industria de Cochabamba
CFO	Certificado Forestal de Origen
CFR	Code of Federal Regulations
CNI	Cámara Nacional de Industria
CoC	Chain of Custody under FSC standards
COSUDE	Swiss International Cooperation
CPTS	Centro de Promoción de Tecnologías Sostenibles
CTO	Cognizant Technical Officer
DCA	Development Credit Authority
EMS	Environmental management system(s)
EO-SOT	Economic Opportunities Strategic Objective Team
ER	Environmental Review
ESFOR	Escuela Superior Forestal
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
FLO	FairTrade Labeling Organization

FSC	Forest Stewardship Council
GDA	Global Development Alliance
HACCP	Hazard Analysis and Critical Control Point
IBNORCA	Instituto Boliviana de Normalización y Calidad
IDB	Inter-American Development Bank
IEE	Initial Environmental Examination
IFOAMA	International Federation of International Organic Movements
ISO	International Organization for Standards
MAPA	USAID/Bolivia Market Access and Poverty Alleviation project
MEO	Mission Environment Officer
OH&S	Occupational, Health and Safety
OHSAS	Occupation Health and Safety Assessment Series
P2	Pollution prevention
PRODEM	Fundación para la Promoción y Desarrollo de la Microempresa
QWEST	Quality, Workplace, Environment and Safety Tool
RAI	Registro Ambiental Industrial
RASIM	Reglamento Ambiental del Sector Industrial y Manufactoreo
SA 8000	Social Accountability Standards
SME	Small and medium enterprise ¹
SYSO	Sistema de Gestión de Seguridad y Salud Ocupacional
USAID	United States Agency for International Development
UPSA	Universidad Privada de Santa Cruz
VICE	Vice Ministry for Industry, Commerce and Exports
WHO	World Health Organization
WRAP	World Responsible Apparel Production program

¹ The definition of SMEs is taken from Resolution 202/2004 from September 29, 2004 from the Ministry of Economic Development: *Small enterprise*: up to 30 jobs and \$ 400.000 in annual sales; *Medium enterprise*: up to 100 jobs and \$1.6 million in annual sales.

EXECUTIVE SUMMARY

This report assesses the environmental impact of activities to improve the business environment for small and medium enterprises (SMEs) in Bolivia under the USAID Bolivian Trade and Business Competitiveness Program (BTBC). In the course of achieving the Mission's Economic Opportunity Strategic Objective (SO), *Increased Incomes for Bolivia's Poor*, and Intermediate Result (IR) 1, *Growth of Non-traditional, Value-added Productive Sectors*, environmental costs and benefits inevitably result. For this reason, and to comply with USAID environmental regulations, an Initial Environmental Examination (IEE) and Negative Determination Threshold Decision (LAC-IEE-02-34) were approved defining conditions and mitigation measures. The IEE recommended that BTBC work to achieve the following:

- Improve the overall business environment in Bolivia
- Improve a firm's profitability through the adoption of improved cleaner production technologies
- Increase the application by business of environmental measures that ensure access to sophisticated and demanding markets for selected products
- Ensure that proposed interventions and commodity sector or products are screened carefully for their short-, medium-, and long-term impacts on employment generation, equity, environment, and broad-based growth
- Conduct an annual review on interventions that are required to receive environmental scrutiny and submit an annual report to the Mission Environment Officer (MEO) for approval that demonstrates the application of the above measures.

The purpose of this Environmental Review (ER) is to comply with the Environmental Threshold Decision approved for the BTBC project by identifying and analyzing the environmental impact of activities performed under the project, and delineating mitigation activities to ensure compliance with USAID regulations and Government of Bolivia laws and regulations. The ER covers all activities defined under Phase I of the project. Results of the ER also will provide guidance on addressing environmental issues during implementation of Phase II.

Phase I of BTBC began in January 2003 and concluded in June 2005, followed by immediate start-up of BTBC Phase II. Initially, BTBC activities emphasized assistance to expand benefits to Bolivia under the new Andean Trade Promotion and Drug Eradication Act (ATPDEA) and help prepare Bolivia for accession to FTAA and other international trade agreements. Over the longer term, BTBC will evolve into a program of activities to improve Bolivia's trade capacity and competitiveness on a broader scale. In line with this changing focus, the ER emphasizes opportunities to more fully integrate environmental, worker safety, and risk reduction across BTBC II components as fundamental factors affecting competitiveness.

The competitiveness of Bolivian producers and processors in both international and national markets increasingly depends on their ability to meet rapidly evolving market standards and regulatory requirements. Beyond basic quality, many export markets require conformance to national and international standards for worker and consumer safety, environmental, and phyto-sanitary controls. Recognizing this, the ER takes an Environmental Management Systems (EMS) approach to the way firms assisted under this project do business, considering such things as conformity to market standards, cost-control, compliance with rules and regulations, and corporate or enterprise responsibility. Building on BTBC I initiatives, excellent opportunities exist for more systematic integration of "environmental competitiveness" criteria in BTBC II operations. This will ensure higher environmental regulatory compliance as well as greater attention by client firms to market-based signals that lead to voluntary behavioral changes and positive impacts that will be sustainable after project end.

The consultant responsible for carrying out the ER spent approximately two weeks in-country conducting the review. Prior to and during this time, he conducted an extensive review of project and other documentation, including BTBC I and BTBC II task orders, progress reports and final report for BTBC I, client firm files, work plans, technical reports, business plans, and market information. The consultant also conducted a literature review on experiences and approaches to improving environmental performance of SMEs, as well as international market standards and certification systems that might apply to present and potential priority sectors under BTBC II.

The consultant carried out the environmental assessment with guidance from the USAID Economic Opportunities Strategic Objective (EO-SOT) team leader, cognizant technical officer (CTO) for BTBC, and the Mission environment officer. The consultant also communicated regularly with BTBC staff to ensure that the findings, recommendations, and subsequent implementation were grounded in the overall BTBC II strategy and design. Initial meetings were held with BTBC II technical staff on USAID environmental regulations as applied to the project, the scope and general approach for the ER, and organization of activities. Initial findings were discussed in subsequent meetings, and recommendations formulated. A BTBC staff member accompanied the consultant to meetings and site visits with client firms.

The consultant met with key public and private sector institutions to gauge the level of awareness of environmental issues and concerns in relation to manufacturing and export competitiveness, and to gather information on existing technical assistance, finance, and training programs that BTBC II might draw on or support.

Field visits were made to approximately 16 firms in the wood, textile, jewelry, food processing (tea plant), and leather sectors in La Paz, Cochabamba, and Santa Cruz that received assistance during BTBC I. This represents a sample of approximately 15 percent of the total number of firms assisted during BTBC I. The visits with business owners, plant managers, and marketing personnel brought to light lessons learned, areas for continued improvement, and opportunities for SMEs to adopt EMS approaches in their operations.

PRINCIPAL FINDINGS AND CONCLUSIONS

1. The ability of BTBC-supported producers to enter and remain competitive in export markets will increasingly depend on their ability to apply international practices and standards for quality, health, and environment. Some product lines are very sensitive to consumer and buyer demands for safety and assurances that they have been produced in an environmentally and socially responsible manner. These factors will become increasingly important if BTBC II expands into the processed foods and tourism sectors.
2. The BTBC team and a majority of client export firms visited demonstrate both a high level of awareness of the actual and potential environmental impacts of ongoing operations and a determination to proactively address them. To its credit BTBC I chose to work with industry leaders like MACAWS, Texturbol, MABET, and Exportadores Bolivianos, forward-looking companies spurred by their markets to adopt environmental management practices that serve to improve productivity, lower risks and costs, and better position them in very competitive and fluid markets. These and other companies assisted by

BTBC I embody numerous examples of best practices to prevent, reduce, or mitigate negative environmental impacts and workplace risks. They serve as examples for their peers and offer the opportunity to extend these practices to SMEs as they are brought into export chains.

3. The range of knowledge and experience of client firms assisted by BTBC I in environmental management systems varies widely, ranging from firms that are certified to internationally recognized standards (ISO, WRAP, FSC) to other, usually smaller firms, that are only beginning to appreciate how things such as certification may affect their operations. In some cases, BTBC I has been instrumental in this process and should be commended for meeting head on the challenge of addressing the environmental competitiveness issues facing SMEs, a theme that will take on added significance in BTBC II.
4. BTBC helped some companies obtain international certification. The premier example is industry leader MACAWS, which was certified in ISO 9001 and OHSAS 18001, making it the first Bolivian company to obtain the latter certification in occupational safety and health. MACAWS has since moved to implement ISO 14001 and recently obtained certification under this standard.
5. In the wood products sector, BTBC has been particularly successful in assisting sawmills and drying operations implement FSC practices leading to certification, improved industrial safety, increased efficiency in wood-drying, and other manufacturing processes leading to reduced waste and energy conservation. BTBC I also encouraged the use of alternative wood species, which has positive upstream impacts related to forest management.
6. Although documentation is uneven, most firms assisted under BTBC I seem to be compliant with Bolivian environmental law (Law 1333). The *Reglamento Ambiental del Sector Industrial y Manufactoreo* (RASIM) procedures promulgated in 2002 have proven to be especially practicable in helping firms systematically progress to improve their environmental performance and compliance.
7. The operations of some BTBC I client firms still assume a high level of risk posed by poor environmental and safety practices. Though not caused by or exacerbated by BTBC I interventions, there are cases where current operations of assisted firms have precarious working conditions, are causing locally important environmental impacts, and are incurring additional operating costs. Following are the most significant environmental and worker safety issues faced by client firms as expressed by project technical staff, company managers, and observed during site visits:

- Weak accounting of environmental, safety, and social aspects in competitiveness analyses of the value chains and development of assistance packages for client firms
 - Inadequate handling, storage, and disposal of hazardous inputs and wastes
 - Inadequate ventilation and lighting
 - Lack of, or improper safety equipment
 - Inadequate treatment of liquid and solid wastes
 - Probable upstream impacts from suppliers' operations, particularly in the leather, jewelry, and wood sectors
 - Uneven knowledge by plant managers and firm owners of EMS-based approaches and international certification programs
 - Little or no training of managers and personnel to improve quality, environmental and social responsibility, health and safety, and other competitive criteria
8. Measures approved in the IEE have been partially implemented during BTBC I. While BTBC I provided assistance in cleaner production and promotion of environmental measures that would open access to more sophisticated and demanding markets, this was not done systematically across sectors or firms. Also, assessments of potential environmental impacts or effects on equity of proposed interventions were done informally and on an ad hoc basis, rather than by application of simple, formal screening procedures. As a result, many opportunities to enhance the competitive position of client firms were overlooked. Some firms continue to be overly exposed to legal, health, and market risks due to poor environmental performance.
 9. There is uneven knowledge within BTBC staff of international market standards and certification systems for environmental management, labor, consumer safety, and social performance and how these norms might be harnessed to advance BTBC II objectives. Similarly, environmental, safety, and social issues, whether from a normative (22 CFR Reg. 216, Bolivian Law 1333, Bolivian Law 1700) or competitive perspective, had not been routinely internalized in BTBC I operations. There is a vital need to do so during BTBC II.
 10. The expansion of interventions under BTBC II in number of firms and new sectors (tourism, processed agricultural products, natural

pharmaceuticals) presents new opportunities and risks that call for dedicating more attention and resources to EMS issues in business plans.

11. A wide range of environmental management and related services, studies, manuals, and management tools are available through both the public and private sectors that could be more fully leveraged during BTBC II. There are also successful examples of international certification in Bolivia with national companies that offer certification services (IFOMA, FairTrade, ISO 9001/14001, FSC).
12. The International Organization for Standards (ISO) and other standards bodies such as Social Accountability 8000 are increasingly providing governments with the technical base for health, safety, and environmental legislation and bilateral and multilateral trade negotiations. This may be important in Andean-American Free Trade Agreement negotiations and Andean Trade Preference and Drug Control Agreement issues that BTBC II may become involved in.

MAIN RECOMMENDATIONS

1. BTBC II should verify that all client firms are compliant with Bolivian environmental law (No. 1333) and, in the case of the forest product enterprises, Bolivian forestry law (No. 1700). As with other information required by BTBC for enrolling firms in assistance programs, client firms should present copies of documents supporting compliance (*Licencia Ambiental, Registro Ambiental Industrial, Certificado Forestal de Origen, Aprobación de Plan de Manejo Forestal*, etc.). Firms that cannot demonstrate compliance with national environmental regulations, a recognized problem particularly for smaller enterprises, should be required to do so within a reasonable timeframe once they enter the BTBC II program.
2. Increasingly strict environmental, worker, and consumer safety and social responsibility practices and norms by sophisticated and demanding export markets require that these considerations become a fundamental and integral part of client firms' competitive models, business plans, and general operating procedures. Work on this should begin early during BTBC II, starting with initial contacts, "competitiveness benchmarking," and use of other diagnostic tools.
3. Openness and "buy-in" by top management to improve environmental, safety, and social performance should be a criterion used by BTBC II to decide which firms to accept into its assistance program.
4. As with other competitiveness factors, an approach of "continuous improvement" should ground specific interventions by BTBC II and client firms in EMS with the goal of instilling the central role that

environmental, safety, and social considerations play in enterprises' ability to compete in national and international markets.

5. A full-time national environmental management advisor should be hired by the project for at least a 12-month period. This advisor would be responsible for internalizing EMS, worker, and consumer safety, and social responsibility concerns and opportunities routinely into all project operations: planning, implementation methodologies, training, technical assistance, market development, Development Credit Authority (DCA) and Global Development Alliance (GDA) initiatives, monitoring, and evaluation.
6. Synergies between BTBC II and other projects, programs, and institutions should be maximized to take advantage of certification, cleaner production, technical assistance, and training services. Key counterparts and collaborators could include: *Cámara Nacional de Industria* (CNI), *Cámara Departamental de Industria de Cochabamba* (CDIC), *Cámara de Industria, Comercio, Servicios y Turismo de Santa Cruz* (CAINCO), *Instituto Boliviana de Normalización y Calidad* (IBNORCA), *Universidad Privada de Santa Cruz* (UPSA), *Cámara Departamental de la Pequeña Industria y Artesanía* (CADEPIA), *Centro de Promoción de Tecnologías Sostenibles* (CPTS), *Centro Amazónico de Desarrollo Forestal* (CADEFOR), and FUNDES. The environmental management advisor would take the lead on strengthening interinstitutional cooperation in these areas.
7. Although admittedly complicated, BTBC II should investigate opportunities to work with FUNDA-PRO to stimulate demand by client export firms for its credit line for cleaner production investments: *Fondo de Biomasa y Producción más Limpia*. Consideration should be given to ways that a DCA facility might be extended to this credit line managed by FUNDA-PRO to lower access barriers by SMEs.
8. Environmental management systems, national regulatory compliance, and market standards should be central themes in BTBC training modules. Simple technical manuals and extension materials on these topics should be developed and distributed to client export firms. These could be based on the environmental and cleaner production guides already completed by CPTS and FUNDES for the tanneries, wood products, and textile sectors.
9. Specialized, higher level training should be done early in BTBC II to familiarize project staff, business center operators, business trainers, and top management of client firms with the following:

- Cleaner production
 - Pollution prevention (P2) and control
 - EMS and risk assessment
 - Market standards and grades
 - Regulatory compliance
10. The pool of national technical expertise for BTBC II assistance programs should be expanded to include advisors in EMS, cleaner production technology, market standards and certification, worker safety, and consumer health.
 11. While the recommended Environmental Threshold Decision approved for the IEE for BTBC I is still valid for BTBC II, the IEE should be amended to account for the broader scope and expanded activities contemplated under BTBC II. Specifically, the IEE should more precisely define measures and conditions for each value chain.
 12. The user-friendly Quality, Workplace, Environment and Safety Tool (QWEST), an environmental diagnostic and decision-making tool currently under development by Chemonics, would help projects analyze their partner/client operations and develop “environmental competitiveness” plans that address the four “Cs” of competitiveness, cost-savings, compliance, and corporate responsibility in an integrated fashion. With a modest investment to complete development, QWEST would be an invaluable tool for BTBC II staff, business centers, and clients to identify and prioritize environmental problems affecting operations and urgent actions. Cost-sharing arrangements might be considered as QWEST would be a valuable tool for other USAID/Bolivia projects, including the Bolivia Market Access and Poverty Alleviation (MAPA) II project and the Bolivia Rural Competitiveness Activity (ARCo). (See Annex IV)
 13. BTBC II client firms should be given guidance in evaluating the feasibility and advantages of applying international certification and standards systems to their operations. As part of its overall marketing efforts, BTBC II should track and distribute to stakeholders information on market trends and requirements for certified products in different sectors.
 14. BTBC II should take immediate steps to assist high-risk client firms to address pressing environmental and safety hazards. A rapid evaluation of other client firms not visited during the ER should be completed.
 15. The BTBC II monitoring and evaluation system should include indicators to track environmental regulatory compliance, application of

environmental management systems, buyer requirements, certification and audits of client operations, and exports to certified markets.

16. Investments in EMS, market certification and cleaner production should be eligible under any DCA facility planned during BTBC II.
17. Environmental, labor, and consumer safety issues should be a priority in the assistance and training that BTBC II will provide to Bolivian officials involved in regional and bilateral trade negotiations and setting national policies to increase competitiveness and exports of Bolivian enterprises. CNI could be a valuable partner in this effort given its involvement in helping Bolivian negotiators address environmental issues in Andean-American Free Trade Agreement negotiations.
18. The investment to implement the above recommendations and measures approved in the Initial Environmental Examination for BTBC I is estimated at \$435,000 over the life of BTBC II and is detailed in the illustrative budget in Section VI. (Total estimated budget for the BTBC II program is \$18.9 million) In some cases, these costs can be accounted for in established BTBC II operations.

SECTION I

INTRODUCTION

A. INITIAL ENVIRONMENTAL EXAMINATION AND THRESHOLD DECISION

Improving the competitiveness of Bolivian enterprises is a core element of USAID/Bolivia's strategic plan under its Economic Opportunities Strategic Objective (SO), *Increased Incomes for Bolivia's Poor*. In January 2003, the Bolivian Trade and Business Competitiveness Program (BTBC I) began providing technical and other assistance to overcome constraints to trade and competitiveness, and improve the competitive production of goods and services with direct assistance to individual firms or groups of firms. This was done through two main areas of intervention:

1. Improving the business climate to unleash the competitiveness of the private sector and thus grow exports and accelerate economic growth.
2. Stimulating competitive production of goods and services and private sector exports, particularly in the wood products, textiles, leather goods, and jewelry sectors by providing small and medium enterprises (SMEs) with targeted technical assistance in production, management, and marketing.

Activities aimed at improving the competitiveness of enterprises generally incur both environmental costs and benefits. Therefore, following USAID environmental procedures (22 CFR 216), an Initial Environmental Examination (IEE) was conducted for BTBC I. An Environmental Threshold Decision (LAC-IEE-02-34) was approved for the IEE defining conditions and mitigation measures to ensure both regulatory compliance and to improve competitiveness of firms assisted under the project. The Environmental Threshold Decision issued the following decisions:

1. A categorical exclusion for activities related to:
 - Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.) per Section 216.2(c) (2)(i)
 - Analyses, studies, academic or research workshops and meetings, per Section 216.2(c)(2)(iii)
 - Matching, general support, and institutional support grants provided to private voluntary organizations (PVOs) to assist in financing programs where AID's objective in providing such financing does not require knowledge of or control over the details of the specific activities conducted by the PVO, per Section 216 (c)(2)(xiii)
2. A Negative Determination is issued for all other interventions that will endeavor to eliminate constraints for selected businesses in the forestry/wood sector such as tourism and certain textiles, based upon the understanding that BTBC will: a) work to improve the overall business environment in Bolivia; b) seek to improve a firm's profitability through the adoption of improved cleaner production technologies; and c) increase the application by business of environmental measures that ensure access to sophisticated and demanding markets for selected products, e.g., in certified tropical wood products. USAID/Bolivia will ensure that proposed interventions and commodity sector or products are screened carefully for their short-, medium- and long-term impacts on employment generation, equity, environment and broad-based growth. USAID/Bolivia will conduct an annual review on interventions affected by this negative determination and submit an annual report to the MEO for approval that demonstrates the application of these understandings.

The second phase of BTBC got underway in July 2005. BTBC II will expand the scope of BTBC I to achieve broader long-term interventions to improve Bolivia's trade capacity and competitiveness. BTBC II has six core components:

1. Direct assistance to firms in select export sectors
2. Creation of three regional competitiveness hubs
3. Training program for Bolivian trade negotiators
4. Support to GOB office responsible for competitiveness and trade negotiations
5. Increased financing for trade-related activities
6. Groundwork and trade management efforts

Five optional components will be implemented if sufficient funding is available:

1. Development of electronic trade
2. Analysis of international trade and competitiveness
3. Dissemination
4. Institutional strengthening
5. Improvement of the investment environment.

B. OBJECTIVES OF THE ENVIRONMENTAL REVIEW

The objective of this environmental review is to assess the level of compliance during BTBC I with the approved Environmental Threshold Decision and delineate activities to ensure compliance with USAID and Government of Bolivia (GOB) laws and regulations during BTBC II. The review also assesses whether market-led measures are in line with individual firms' business plans.

The conditions and measures stipulated under the Environmental Threshold Decision are aimed at improving environmental performance through compliance with market standards, investments in cleaner production technologies, and environmental management system approaches. In this context, the ER identifies opportunities to build on BTBC I initiatives and those of individual firms to better integrate environmental, worker safety, and risk reduction across BTBC II components as factors affecting competitiveness.

C. METHODOLOGY

The ER addresses environmental considerations at two levels: *environmental compliance* and *environmental competitiveness*. Beyond compliance with USAID regulations per the Environmental Threshold Decision, the concept of “environmental competitiveness” cuts across environmental, worker safety, health, and social corporate responsibility issues and allows projects and stakeholders to analyze their performance in the larger context of best business management practices. These practices encompass the following fundamentals:

- *Conformity*—Businesses, especially those selling to export markets, are compelled by buyers to meet specific and demanding market standards
- *Cost*—Companies are constantly looking for ways to cut costs and increase productivity, areas where environment management systems (EMS), cleaner production, and pollution prevention (P2) can have significant impacts
- *Compliance*—Firms are increasingly responsible for recognizing and proposing mitigation for activities, and businesses are coming under increasing scrutiny by authorities, buyers, and consumers to comply with regulations

- *Corporate responsibility*—Whether at a neighborhood level or internationally, enterprises of all sizes are being called to task for upstream and downstream impacts generated beyond the confines of their immediate operations.

Environmental competitiveness can be achieved by adopting EMS, P2, and market standards' approaches at the firm level. To this end, the ER attempts to:

- Review BTBC I compliance under 22 CFR 216
- Identify opportunities to include “environmental competitiveness” as a basic feature of BTBC II routine operating procedures:
 - Introduce environmental compliance and management issues in “competitiveness benchmarking” and business planning
 - Assess risks and control costs
 - Spur investment in innovative, cost-effective cleaner production technologies
 - Systematically address environmental issues in project training and technical assistance
 - Deepen understanding of international standards and address limitations to their adoption

The principal aim of the environmental review is to:

- Keep BTBC II compliant with 22 CFR 216
- Keep client enterprises compliant with local laws and export market standards, thereby keeping them open for business
- Increase productivity and reduce risk while reducing contamination
- Improve access to dependable suppliers and higher end, value-conscious markets
- Focus environmental concerns on the bottom line

C1. REVIEW OF PROJECT AND OTHER DOCUMENTATION

The consultant conducted an extensive review of Phase I and II of the BTBC project and other documentation before and during the ER, including the Phase I and II task orders, BTBC I progress reports and final report, bench-line studies of client firms, work plans, technical reports, business plans, and

market information. A literature review also was conducted on experiences and approaches to improving environmental performance of SMEs, and international market standards and certification systems that might apply to present and potential priority sectors under BTBC II.

C2. CONSULTATION WITH USAID AND BTBC II STAFF

In conducting the environmental review, the consultant interacted extensively with the USAID Economic Opportunities Strategic Objective (EO SOT) team leader, cognizant technical officer (CTO) for BTBC, and the Mission environmental officer. Contacts included initial consultations with USAID principals, periodic updating on the progress of the ER, and debriefing on initial findings and recommendations.

To ensure the ER was thoroughly grounded in the overall project strategy and design, the consultant met with BTBC II technical staff to discuss USAID environmental regulations as applied to the project, the scope and general approach for the ER, and organization of activities. Initial findings were discussed and recommendations formulated in subsequent meetings. A BTBC II staff member accompanied the consultant to most meetings and site visits with client firms.

C3. MEETINGS WITH KEY BOLIVIAN PUBLIC AND PRIVATE SECTOR INSTITUTIONS

The consultant met with key public and private sector institutions to gauge awareness of environmental issues and concerns related to manufacturing and export competitiveness. The consultant also gathered information on existing technical assistance, finance, and training programs that might be used or supported under BTBC II. Of particular importance for the ER are the Cámaras Departamentales y Nacional de Industria, Centro de Promoción de Tecnologías Sostenibles, Cámaras Departamentales de la Pequeña Industria y Artesanía, FUNDES, and FUNDA-PRO.

C4. FIELD VISITS AND INTERVIEWS WITH CLIENT FIRMS

Visits were made to 16 representative firms in the wood, textile, leather, food processing (tea plant), and jewelry sectors in La Paz, Cochabamba, El Alto, and Santa Cruz that received assistance during BTBC I. This sample represents approximately 15 percent of the total number of firms assisted during BTBC I. A complete list of firms assisted during BTBC I is provided in Annex IV. The purpose of the visits was three-fold:

1. Assess how much EMS and worker safety issues are considered in overall operations
2. Identify observable risks

3. Extract lessons learned and identify opportunities for BTBC II to assist firms to raise the level of regulatory compliance and overall competitiveness through an “environmental competitiveness” approach

These short visits should not be seen as constituting an environmental audit or regulatory inspection, ends that are beyond the scope of the ER.

SECTION II

ENVIRONMENTAL MANAGEMENT SYSTEMS—BASIC CONCEPTS²

A goal of the second phase of BTBC is to improve competitiveness by applying an “Environmental Management Systems” (EMS) approach to the way firms assisted under this project do business. EMS is a planning and implementation tool for managing the way a company or organization deals with the natural environment. Unlike environmental regulations, EMS focuses on a company’s processes and operations rather than its emissions, effluents and wastes; instead, emissions, effluents, and wastes are the measure of the effectiveness of an EMS. An EMS is built into a company’s operations. It is built on principles of strategic management—any good manager would want to use an EMS to improve productivity, and reduce costs and risks. In sum, an EMS is a system for continually improving a company’s environmental performance and thereby its business and sustainability.

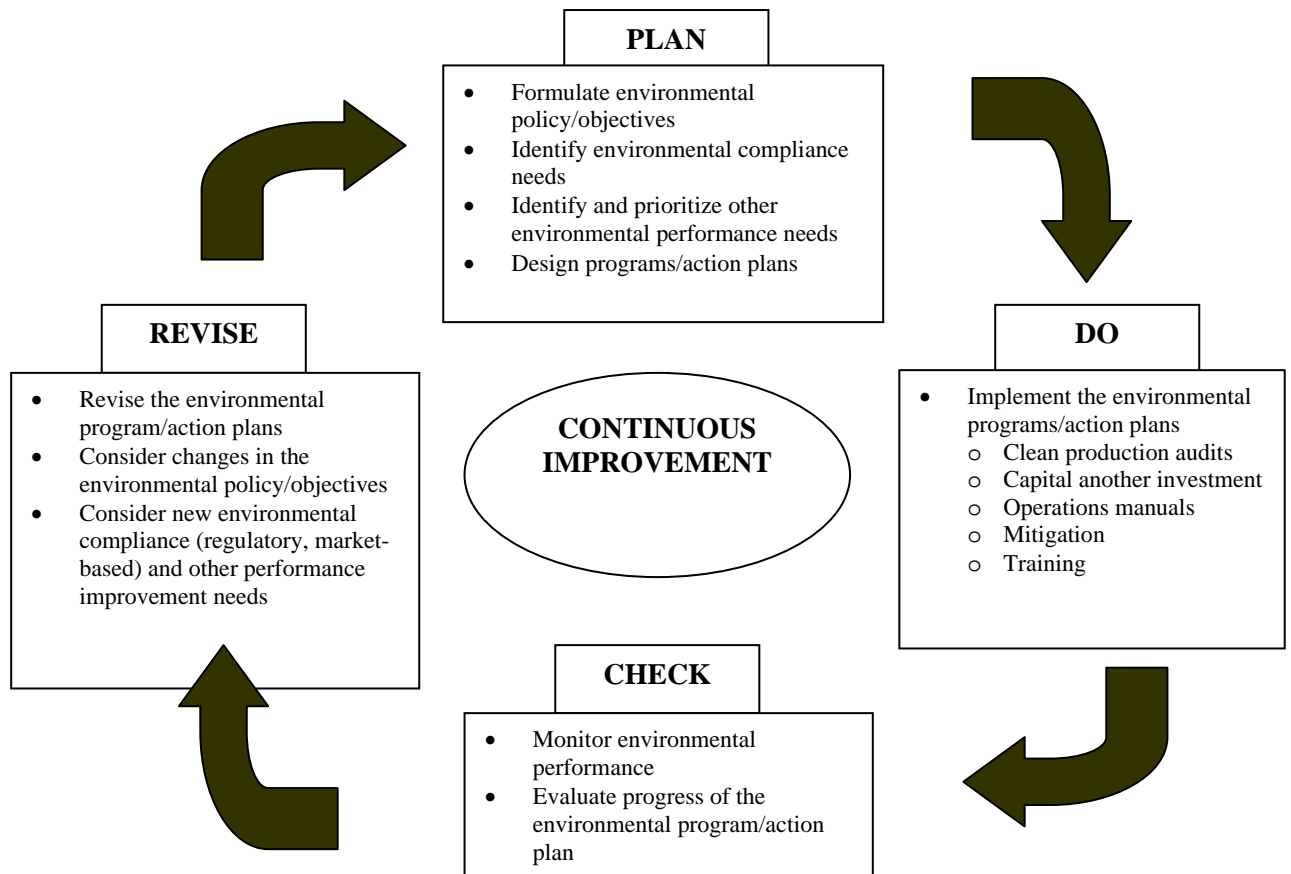
Simple or complex, an EMS costs a company time, staff energy, and money. Top management agrees to invest in an EMS because it pays to do so. A sound EMS will be productive, generating improvements in environmental performance, operational efficiency, and environmental risk reduction, all of which contribute to the company’s bottom line. The following are key drivers for establishing and maintaining an EMS in an organization:

² This discussion is largely drawn from Bendavid-Val, A. and N. P. Cheremisinoff, *Achieving Environmental Excellence – Integrating P2 and EMS to Increase Profits*, 2003.

- Minimize the cost of operations required for environmental management and compliance (energy and raw material utilization, Law 1333)
- Improve environmental performance at lower cost (prioritize actions)
- Improve overall enterprise management and business performance (spill-over effects)
- Prepare for coming trends in environmental management (in Bolivia, sector-specific regulatory norms)
- Improve prospects for long-term sustainability
- Reduce overall operating costs (energy, raw materials, waste treatment)
- Achieve high rates of return on capital investments (choice of equipment and processes)
- Lower capital and other business service costs and greater access to capital (lender environmental requirements)
- Improve market access (conformance with buyer-driven requirements)
- Achieve better public, community and government relations (image and goodwill)

Some companies, usually larger companies selling to more sophisticated markets (e.g., MACAWS, Texturbol, MABET, Exportadores Bolivianos, among BTBC I client firms), will reap additional benefits of ISO 14001 certification that verifies compliance with ISO standards for an EMS. Like any other system of planning and implementation, consistent application of the basic elements of EMS—planning, implementation, monitoring, and revision—will lead to continual improvement of performance.

Figure 2.1 Basic Elements of an EMS



SECTION III

LESSONS LEARNED AND OPPORTUNITIES

FIELD VISITS AND INTERVIEWS WITH CLIENT FIRMS

Visits were made to 16 firms in the wood, textile, leather, and jewelry sectors in El Alto, La Paz, Cochabamba, and Santa Cruz that received assistance during BTBC I. This sample represents approximately 15 percent of the total number of firms assisted during BTBC I.

These short visits did not constitute an environmental audit or regulatory inspection, ends that were beyond the scope of the ER. Nor do we detail the history or operations of each firm, information that can be found in project files. The summaries that follow try to shed light on the principle concerns, risks, best practices, and opportunities that may be present during BTBC II. Management at several firms already demonstrate a high level of “environmental awareness” and how it relates to their bottom line. This is a reflection of Bolivia’s long history of advocacy and technical assistance in environmental management that has been supported by governments, the private sector, international cooperation, interventions by BTBC I, and market-driven incentives.

Where problems exist, in some cases with serious impact and risk, there was no evidence that actions by BTBC I caused or exacerbated what are consequences of firms’ normal operations. As a whole, there are many lessons, positive and negative, that can be adopted by less-advanced and smaller enterprises. A special effort has been made to highlight these in the site visit descriptions.

A. WOOD PRODUCTS

BTBC I was very active in the wood products sector. During this phase BTBC assisted sawmills and drying operations that led, in some cases, to Chain of Custody (COC) certification under the Forestry Stewardship Council international standard (FSC). Industrial safety issues were addressed with different sawmills, including improved layout and signage in the entire production area. BTBC technical assistance also extended to appropriate loading of the wood-drying kilns to increase productivity, air speed control, and humidity reduction, resulting in significant improvements in drying times and wood quality, reduced waste, and energy conservation. BTBC I also helped firms inspect equipment to ensure proper functioning, and alerted clients to problems such as clogged air ducts, low turbine speeds, and heat loss due to poor insulation. Most significant was how BTBC I encouraged the use of alternative wood species and smaller dimension wood pieces in manufacturing processes, which can have positive upstream impacts on native forests.

A1. MADERERA BOLIVIANA ETIENNE S.A.—MABET

MABET is one of Bolivia's largest wood products companies. Established in 1985, the firm is vertically integrated with three forestry concessions covering 300,000 ha and primary processing facilities in the Riberalta region, Beni Department (including two wood kilns) and main processing and finishing plants in an industrial sector of El Alto. MABET is one of 17 Bolivian companies whose forest management and processing operations (Chain of Custody–CoC) are certified under the Forest Stewardship Council (FSC) standard. (The company also buys wood from other non-certified sources to supplement its supply chain.) Investment in FCS certification reflects this company's forward-looking, progressive policies and is viewed as a preemptive step to stay competitive in markets that are steadily moving toward stricter sourcing and traceability requirements, especially in Europe. Main species used in its line of doors, flooring, molding, and other wood products are *mara* (broadleaf mahogany), *roble* (tropical oak) and approximately 12 other species (*mara macho*, *morado*, *tiger wood*). Main markets are the United States and Chile. MABET has recently opened a new market in Holland that offers a 5 percent price premium for certified wood products.

MABET's operations at its main processing plant are well organized and benefits from progressive management. FSC Chain of Custody certification provides a system for tracking certified wood from the forest through each stage of production and distribution to the point of sale (Fig. 3.1). This requires that certified companies such as MABET comply with the following requirements:

- One person/position responsible for CoC for the company
- All key personnel understand their role in the CoC
- Identify, provide, and document training needs
- Accurate, up-to-date record keeping
- Accurate labeling



Figure 3.1 FSC-certified lumber

Time did not allow for field visits to MABET forest management operations. However, FSC certification can, in large measure, be used as a proxy for USAID 22 CFR Section 216 compliance.³ MABET is compliant with national environmental and forestry laws, a requirement for FSC forest management and CoC certification. Manufacturing processes appear to be very efficient with a high rate of raw material utilization. Smaller pieces of wood that would otherwise be discarded are now utilized in the core of laminated doors and finger-jointed molding. Processing equipment was more modern and appeared to be in excellent operating condition, further reducing waste. The main energy sources are natural gas for kiln drying of wood and electricity. Few chemical products are used in MABET's operations, the most important being glues (Din 4) and linseed oil.

Working conditions are generally good. Machinery is logically ordered in open and spacious work areas. Adequate ventilation and reduction of particulate matter generated from sawing, planing, and sanding operations are achieved by an extensive system of locally manufactured cyclone exhaust vacuums leading to closed silos with filters, thus preventing outside contamination (Fig. 3.2). Still, observations left the impression that more needed to be done to further



Figure 3.2 Sawdust exhaust system

³ A recent study conducted for forestry operations in the Petén, Guatemala concluded that there does not appear to be any significant divergences between the letter and intent of USAID's guiding environmental policies and those of certifying bodies accredited by FSC, and that FSC certification meets and can exceed the requirements set in pertinent USAID environmental regulations. Forest Certification and Environmental Assessment: A Review of the Use of FSC Certification to 22 CFR 216. Chemonics International Inc., 2004

reduce ambient particulate matter. The significant volumes of sawdust generated by this plant are used by artisan brick makers. The company is also looking into markets and processes for using this waste to manufacture briquettes.

The El Alto plant employs some 380 workers, many of whom are highly skilled.

MABET has a continuous employee training program in quality control (75 percent of effort), industrial security (25 percent) and environmental controls (5 percent). Concern for worker safety is evident throughout the plant. Safety equipment such as protective glasses, goggles, hard hats, respirators, gloves, and work shoes are provided and their use is

strictly enforced. Safety signage, fire extinguishers, and cut-off switches were all in clear view (Fig. 3.3). The company would like to expand worker and management training in EMS.



Figure 3.3 Safety signage and equipment

Although future collaboration between MABET and BTBC II had yet to be defined, management expressed an interest in continuing collaboration in the following areas:

- Organization and logistics of lumber operations in Riberalta
- More detailed analysis of processing operations to further improve wood utilization and reduce waste
- Development of more precise drying protocols for alternative species, especially for its Riberalta wood kilns
- Energy audits to reduce consumption and costs
- Additional training in sawing techniques to improve further lumber yields per log, sawing for quality (i.e., “Better Open Face” methods), and equipment maintenance
- Cleaner production technologies

MABET is considering ISO 9001 and 14001 certification in the future, a process that would undoubtedly reveal other opportunities to improve productivity and quality control and reduce energy use and waste streams, all important measures that not only reduce environmental impacts but contribute to the bottom-line.

A2. SOEX

SOEX wood products company provides a good illustration of the range of export clients assisted by BTBC I. With less than two years in operation, SOEX produces mostly doors in small lots at a small plant on the outskirts of El Alto for export to the United States (Fig. 3.4). Though not much larger than a workshop and using basic equipment and processing methods, the entrepreneurial fervor of the owner is palpable. Production has risen rapidly as quality has improved and its main buyer increased orders from an initial 20 doors per month to more than 150 currently. Projections are to double production in the next year.



Figure 3.4 SOEX plant

Key to SOEX's success in this early stage has been the significant improvement in its lumber utilization rate (mostly cedro), the most expensive cost of production, from less than 30 percent to more than 75 percent. With BTBC I assistance, the company's main buyer agreed to purchase laminated doors manufactured over a core composed of wood pieces (shorts), up to 30 percent of total volume. This has had a tremendous effect on SOEX's profitability and potentially in upstream forest management operations as it considered FSC CoC certification. Costs have been further reduced with the installation of a rustic, but efficient, adobe wood drying kiln, also with BTBC I technical assistance (Fig. 3.5).



Figure 3.5 Adobe wood kiln

SOEX is in compliance with national environmental laws under RASIM regulations and all exports are accompanied by the corresponding Certificado Forestal de Origen (CFO), as required by the national forestry law. As with MABET, glues and adhesives are the main chemical-based inputs used. The workshop could be better ventilated and organized to reduce the high level of particulate matter from sawdust and fine particles from sanding operations. There is no safety signage and the small number of workers (men and women) did not use safety equipment.

In discussions with the SOEX co-owner, the following needs for improving operations were identified:

- Organization and planning of production lines, especially important given its rapid growth

- Cost controls, especially to further increase lumber utilization through development of new production processes and product lines
- More precise wood drying protocols
- Worker training program that would include industrial safety
- CoC certification

A3. SALI LTD.

Sali Ltd. is a wood products company specializing in doors, windows and moldings for export mainly to the United States. Sali was FSC CoC certified from 1997-2003. It lost its certification when it began to have difficulty sourcing adequate volumes of certified “maramacho,” the principal species used in its products. However, changing requirements are forcing Sali to reinstate its FSC CoC status by diversifying the woods used in its product lines; its principal U.S. buyer has a goal to import only certified products by 2007 and Sali is interested in penetrating EU markets that are moving steadily to require certification of all wood products. At the time of the visit, management was anticipating the arrival of Chilean buyers looking to source up to 5000 doors/month, but wanted to differentiate these products in the Chilean market where product certification to an international standard was one option. This example is further testament to accelerating market trends for certified products, even in countries that are not at first thought of as being especially demanding in this respect.

Based on a rapid walk-through, the processing plant appears to be logically and efficiently laid out. Despite a functioning exhaust system, ambient particulate matter from sawdust and fine particles was clearly noticeable. Although protective gear is available and workers receive periodic training from sales agents, most workers were not using face masks, gloves, safety glasses or protection against high noise levels. Nonetheless, managers indicated that plans were to move aggressively to meet Bolivian worker safety and health regulations under the SYSO regime.

While quality control systems are in place, there are no systems to monitor energy use or raw material utilization rates, although this company, too, increasingly incorporates small dimension wood pieces into its products. Co-generation boilers use sawdust and waste wood in combination with natural gas to produce steam for its wood drying kilns. Recommendations from a cleaner production audit carried out by a thesis student from a local university had yet to be implemented. Sali Ltd. is compliant with Bolivian environmental law under the RASIM regime and is inspected regularly by the Forestry Superintendence.

Management expressed the need for assistance in the following areas to improve productivity and competitiveness:

- Expansion of product lines and use of alternative woods
- Drying protocols for less known species
- Energy audit
- Implementation of quality control and environmental management systems based on ISO 9001 and 14001 standards, respectively.

A4. SOMAIN

SOMAIN is a small wood products company in Santa Cruz that manufactures a variety of products from unfinished doors to high-end furniture sold through its own retail outlet and others. The thrust of assistance under BTBC I was to introduce alternative woods into manufacturing processes (yesquero blanco, cambará) to diversify from products traditionally made of roble and mara that are becoming increasingly expensive, in some cases leading to illegal harvesting and degradation of forests for these species.

The manufacturing plant appeared disorganized, poorly laid out and ventilated, and unsafe. The lack of any exhaust or ventilation system made breathing difficult during our short visit. An exhaust system designed with assistance from a DANIDA-financed project is too costly to install at the present time. Most workers did not use the rudimentary safety equipment provided and work spaces were cramped adding to the risk of accidents. What worker training may be offered is informal and irregular and safety signage nonexistent.

SOMAIN submitted a Ficha Ambiental (first-level environmental assessment under the original Law 1333 regulations) in 1995 but never obtained its Licencia Ambiental (environmental verification to operate). All wood enters and all products leave the plant accompanied by the corresponding CFO and the Forestry Superintendence reportedly carries out periodic inspections and conducts inflow and outflow audits of wood volumes. The company owner expressed an interest in FSC CoC certification as a way to improve operations and more deeply penetrate the U.S. market.

Building on assistance under BTBC I, SOMAIN and many similar small wood products manufacturing operations would benefit from technical assistance and capacity strengthening in:

- Organization and planning of production lines
- EMS

- Cost control, especially by increasing lumber utilization rates through development of new production processes and product lines
- Worker training including industrial safety
- Product certification
- Stronger market incentives to improve performance in this and other environmental areas by linking smaller manufacturers to the supply chains of larger, more progressive companies

A5. MUEBLES SAN JORGE

Muebles San Jorge is a small wood manufacturing company in Santa Cruz that has been in operation for less than three years. BTBC I provided sustained technical assistance in manufacturing processes, production line layout, wood drying, increased lumber utilization, and quality control. Its main market is domestic, but San Jorge has recently made its first inroads into U.S. markets.



Figure 3.6 Poorly-lighted work area

The San Jorge plant exhibits many of the environmental and safety challenges typical of smaller, inexperienced wood products companies mentioned previously (SOMAIN, SOEX) that are often starved of investment capital. However, many of the risks and hazards can easily be corrected without the need for large capital investment (Fig. 3.6). A few examples relevant to San Jorge include the following:

- Additional lighting and painting the interior walls white to enhance quality and safety
- Simple fans, additional windows, and vents in lieu of completing installation of the exhaust system
- Mandatory use of available safety equipment, especially gloves, safety glasses, and ear plugs
- Place exposed electric wires in plastic conduits to reduce the risk of fire and accidents

B. TEXTILES AND APPAREL

B1. REY WEAR

Rey Wear is a small textile company operating in the industrial area of El Alto. BTBC I assisted Rey Wear in sewing and assembly operations, which

were not visited. Through a wholly owner affiliate, Rey Wear also operates a small washing and dyeing facility for alpaca, llama, and cotton yarn and fiber. In terms of environmental impacts and worker safety risks, this aspect of Rey Wear operations is very deficient. The main problems stem from poor organization of operations, wastewater discharge, control and use of chemical inputs, generally poor working conditions, and exposure to health risks.

The plant is small, cramped, and poorly ventilated. Machinery is antiquated with pipes and valves rusting and leaking (Fig. 3.7). Steam pipes are only partially insulated leading to significant heat loss and increased energy costs.

Wastewater is discharged directly into the municipal sewer system without prior treatment or monitoring, a practice observed at other washing and dyeing plants. Fire hazards abound. For example, during the visit welding was being done in close proximity to natural gas lines and the receiving area where large bundles of raw cotton, alpaca, and llama fiber were



Figure 3.7 Antiquated equipment

located. No fire extinguishers were readily accessible. (When these hazards were pointed out to the manager, he did produce a fire extinguisher and placed it next to the welders, who continued with their work in the same location unabated.) It appeared that safety equipment is not provided to workers, or otherwise is not used. No safety signage was displayed.

Most worrisome is the lack of controls for chemical products used in the washing and dyeing process, some of which are hazardous. Chemicals are stored together in an unorganized manner in two small, poorly ventilated storage rooms with complete open access.

Canisters and containers are uncovered and bags open (Fig. 3.8). User safety recommendations, storage and disposal instructions, precautionary statements, first aid instructions, and environmental hazards were often absent, illegible or, in some cases, not translated to Spanish. No safety masks, goggles, or gloves were available to workers. A separate room for measuring batches of chemicals for



Figure 3.8 Improperly stored chemicals

different washing and dyeing runs is equally disorganized, with spillage clearly visible. These conditions pose serious health problems, locally significant environmental impacts, and higher financial costs.

The plant has obtained its RAI (*Registro Ambiental Industrial*) under RASIM regulations and departmental authorities had recently inspected the plant and gave management notice to take corrective actions for the most serious problems. The managers were grappling with how to do this and avoid being shutdown for non compliance.

BTBC I collaboration with Rey Wear did not extend to its washing and drying due in part to a misunderstanding that doing so could make the project non-complaint with Reg. 216 given the plant's serious environmental and safety hazards. Such an interpretation was erroneous and counter to the project's broader objectives and goals. BTBC II should expand technical assistance and training programs to proactively assist companies such as Rey Wear with little or no experience in environmental management to improve their ability to identify problems, understand their consequences, and put in place the systems that will lead to corrective actions and continuous improvement. Without such help these companies will continue to face financial and legal risks that could prove fatal for their businesses. The current poor state of its plant notwithstanding, Rey Wear managers were very willing to make environmental and safety improvements, especially if these translated into high profitability in a sector that typically runs on razor-thin margins. Such opportunities and challenges, typical of many SMEs in this and other sectors, should be aggressively pursued during BTBC II through systematic application of EMS approaches.

Rey Wear managers and workers have not received any training in worker safety, risk assessment or environmental management, but were enthusiastic about the idea. Although the concept remains ill defined, the managers were open to using an environmental audit as a way to manage risks, prioritize investments in corrective actions, and gain an additional competitive advantage. This would be an appropriate starting point for future assistance under BTBC II, should the project continue its collaboration with Rey Wear.

B2. COPROCA

COPROCA is a vertically integrated textile and apparel cooperative specializing in alpaca and llama products. The cooperative has more than 1,200 mostly rural family members. The washing, dyeing, and spinning operations are done in a plant that employs both modern technologies and older machines and equipment. Work areas are generally well ventilated and organized, but combating dust and lint is a constant challenge. Dust extractors have been partially installed but not completed due to budget limitations. Safety measures appear to be consistently applied by workers and signage is highly visible. The plant is connected to the municipal water and sewer system and its main energy sources are natural gas and electricity.

Chemical inputs include detergents, softeners, and dyes. COPROCA has made a conscious decision to lower toxicity levels and hazards in its choice of

chemical products. For example, it uses mainly a biodegradable product for washing alpaca that is both gentler on the yarn and has a lower impact on the environment (commercial name, BPNID).

Access, use, and storage of all chemical inputs are tightly controlled and inventoried. This is done as much for safety reasons as a cost control measure since some products are very expensive. The dyeing process is done in closed chambers in a room segregated from other operations (Fig. 3.9). Although the room is spacious and has a ceiling exhauster, chemical smells were present and powerful.

The use of dyes containing chromium is an exception to the relatively low toxicity of chemical products used by COPROCA.



Figure 3.9 Dyeing chamber

COPROCA is compliant with Bolivian environmental law under the RASIM regulation and is aware of the benefits of integrating environment features into its strategy and operations: cost containment, avoiding fines, and maintaining good relations with neighbors, a form of corporate social responsibility. Inspections by the Prefecture cited high turbidity levels in wastewater discharged from its washing and dyeing processes, but effluent canals and septic tanks constructed to separate out heavy sediments were poorly designed and are now being reconstructed along with concrete settling ponds (Fig. 3.10). A simple solution to reduce turbidity and raise pH has been the addition of aluminum sulfate and clean water to wastewater streams.



Figure 3.10 Poorly designed wastewater system

COPROCA management is emphatic about cost and quality control. This explains its decision to pursue ISO 9001 certification for which a second internal audit was completed recently with the assistance of BTBC I. An external audit is scheduled by the end of 2005 by an accredited firm based in Buenos Aires. Future plans include ISO 14001 certification.

- Going forward, priority actions in EMS for COPROCA include the following:
- Control of dust, lint, and other particulate matter
- Pollution prevention (P2), wastewater treatment, and monitoring
- Energy audit and cleaner technology diagnosis
- ISO 14001 certification

B3. CONFECCIONES RECORD

The BTBC team met with RECORD's vice president for marketing before visiting its denim washing plant. In sharp contrast to the more progressive attitudes and openness to EMS expressed by other firms, RECORD's top management seems to be unconvinced of the importance of the "environment" to its operations. The root of this regressive attitude could be the firm's five-year struggle to comply with national law through the original regulatory mechanism defined under Law 1333, unfamiliarity with EMS principles and approaches, and a lack of any incentives by buyers or markets (so far) to change.

This reaction by top management of one of the larger textile and apparel firms in Bolivia should call attention to two considerations. First, there is an urgent need to train not only plant managers and workers in EMS, worker and consumer safety, and socially responsible corporate conduct, but a first priority should be training in these topics for top management. Top management must become convinced of the value of EMS to its operations to gain "buy-in" that will lead to investments and resources needed to improve environmental performance.

A second consideration is related to the criteria BTBC II will use for firms eligible for assistance. Where top management is closed-minded to addressing environmental, worker safety, and social responsibility issues as important aspects to doing business, this may be a predictor of the success of BTBC II assistance to such firms in other spheres of their operations. Openness to improve environmental, safety, and social performance should be one of the criteria used by BTBC II to decide which firms to accept into its assistance program.

Operations at RECORD's denim washing and dyeing plant reflect management's attitudes. The plant exhibits similar deficiencies as those observed at the Rey Wear plant with respect to storage, handling, and control of chemical inputs, worker safety, and discharge of wastewater, with one important difference: plant managers were uninterested in how performance in these areas and others (noise control, energy efficiency, etc.) might be improved by employing simple management systems or investment in inexpensive measures (Fig. 3.11). A lingering doubt following the visit is how worthy a client RECORD would be for BTBC II going forward.



Figure 3.11 Improperly stored chemicals

B4. JHESEM

Based in the industrial park in Santa Cruz, JHESEM is a textile and apparel company specializing in jeans. It also provides washing and dyeing services for many other apparel companies. In contrast to RECORD, the general manager and industrial operations manager demonstrated an acute understanding of the importance of environmental, safety, and social responsibility issues to their operations; high awareness for what needs improvement; and a willingness to work toward better performance in these areas.

The main washing and drying area consists of batteries of machines in a large, spacious room (Fig. 3.12). Ventilation is imperfect with no exhausters or fans, only louver windows just below the ceiling. Workers are protected from moving parts like gears and belts by metal grills and the washing and dyeing machines are designed in such a way that hazards from spillage or splashing are reduced. Natural gas and electricity are the main energy sources. Boilers are located a safe distance from the main work area and space between machines allows for easy movement. Hot water pipes are insulated to conserve energy and added protection. The plant is connected to the industrial park water and sewer system as required. The company is compliant with Bolivian environmental law.



Figure 3.12 Battery of industrial washers

The company's *Plan de Gestión Ambiental* includes monitoring of wastewater by independent, qualified labs, especially for organics. This is also a preventive measure to avoid fines by the industrial park, which actively monitors factory effluents. Safety equipment is available, but not always used. There is no organized training program for workers nor written processing, environmental, or safety manuals. Safety signage was irregular and no fire extinguishers were visible.

The plant has numerous “recipes” for dyeing and bleaching jeans and other clothes according to client requirements. All chemicals (dyes, enzymes, softeners, detergents, bleaches, acids) are totally separated from washing, dyeing, and drying operations in a work space on the second floor having controlled access. All chemicals are inventoried and carefully stored. Ventilation seemed adequate; however, the trained technician did not use safety equipment. As a cost and safety control measure, the precise quantity of each product is carefully metered out by a trained laboratory



Figure 3.13 Lab technician without proper safety equipment

technician according the “recipe” for each batch. These “ingredients” are then delivered to the washing and dyeing area via a dumb-waiter (Fig. 3.13). In a separate room with fewer controls and safety measures (no gloves or face masks), jeans are manually streaked using magnesium permanganate applied with a sponge.

The competitiveness of JHESEM and similar companies could be enhanced by considering the following topics and actions in future technical assistance and training programs:

- Carry out cleaner production and energy audits
- Develop formal policies with respect to EMS and industrial safety
- Training in EMS and ISO 9001 and 14001 certification.

B5. TRAILER

TRAILER is a small apparel company specializing in jeans for export to Chile and Argentina. Its operations also include a small washing and dyeing operation that poses the greatest risks to the company’s viability. The litany of environmental, legal, safety, and social risks that beset TRAILER probably undermine other assistance and training carried out by BTBC I. TRAILER is an example of a BTBC I export client that could greatly benefit from a rapid screening of its operations for environmental and safety risks and subsequent development of a technical assistance and training package to address them. Most of these risks can be easily corrected with little investment, if management is willing. It is enterprises like TRAILER that can benefit most from applying EMS approaches to their operations.



Figure 3.14 Poorly lit and ventilated sewing area

The jeans assembly room is a small, closed environment that lacks adequate ventilation (Fig. 3.14). There is no safety signage or safety equipment visible and no protective gear used by workers. The sewing tables seemed to be poorly laid out. But this the least of the problems observed at the factory.

Upon entering this small plant, which is located in a middle-class residential area in the southern zone of Cochabamba, an acrid, burning odor is overpowering. (After one hour, the consultant had a headache and felt nauseous.) It is highly probable that source of the problem is the use of sodium pyrosulphite and formic acid (UN 1779) in washing operations, which in combination produces a toxic gas, as indicated on the safety labeling and hazard warnings for the former product written in six languages (but not Spanish). These products along with chlorine, expensive enzymes and

whiteners (IX-50), caustic soda (improperly stored in IX-501 containers), and hydrogen peroxide were unsecured in open containers and bags and openly displayed on the edge of the wastewater channel that runs along the floor from the washers to a series of clogged, overflowing, and partially unsealed septic tanks (Fig. 3.15, Fig. 3.16). The owner's three-year old daughter played among these hazards unattended.



Figure 3.15 Open stored chemical next to wastewater drain

Other risks and deficiencies observed in and around the washing and dyeing room include: no signage, clothes and tooth brushes stored in proximity to open dyes containers, exposed electrical wires, no insulation on steam pipes, and the lack of any protective gear by the operator. At the time of the visit, repairs were being made to a gate by a welder wearing open sandals and using arc-welding equipment within three meters of a spreading puddle originating from a leaky water pipe.

Technically and administratively, TRAILER is non compliant with Bolivian environmental laws. Although it is a member of the *Cámara Departamental de Industria*, TRAILER management has not taken advantage of the environmental management training or technical assistance on offer.



Figure 3.16 Open, over-flowing septic tanks

The preceding does not imply that BTBC II should steer clear of working with small companies that exhibit similar conditions and risks. Such is the level of management experience and capability of many firms

that BTBC II can expect to encounter with its focus on SMEs. Indeed, the example of TRAILER makes a strong case for an EMS approach as a fundamental part the project's overall strategy, methodologies, and eventual technical assistance and training programs. There should be a shared sense of responsibility by enterprise owners, workers, BTBC II, project counterparts, and government agencies to address such hazards and problems as part of achieving broader project goals and objectives.

The conditions at TRAILER are not due to malfeasance or an unwillingness to take action by the proprietor; rather, this case illustrates the general unawareness of these problems and their consequences and a lack of knowledge of what corrective actions to take, common dilemmas faced by many similar smaller, less formal companies. Nor do current buyers provide any "push" for TRAILER to put in place rigorous control and management systems and take corrective actions. If a potential firm meets other project

selection criteria and managers express a genuine willingness to seriously address risks posed by poor or non compliant environmental and working conditions, then BTBC II should not shy away from including such firms among its clientele.

B6. ALFACH

Alfach is an apparel company located in a residential area in the poorer southern section of Cochabamba (Barrio Siglo XX). The company produces clothes for the Chilean market. Washing and dyeing operations are done on the premises by an associated but separately owned company. BTBC I assistance was limited to design and processing associated with assemble operations, where working conditions were very positive and apparently impacts benign.

There are no municipal sewer or water services in this part of Cochabamba. As a result, the company has to purchase water from private vendors and similarly dispose of wastewater stored in underground septic tanks. Plant managers had no idea where the private trucking company eventually dumped the wastewater collected at the factory. Taken together, water deliveries and off-site disposal of waste water represent a major operating cost for Alfach.

There is a strong incentive for the company to pay special attention to environmental impacts from wastewater streams, emission of lint, and noise. Frequent complaints in the past led to neighborhood protests and threats by authorities to shut down the plant. Alfach contracted FUNDES to prepare a Manifiesto Ambiental that lays out mitigation and monitoring measures. The company is in the process of putting in place systems and has completed internal audits for ISO 9001 certification with assistance from the Cámara Departamental de Industria.

B7. TEXTURBOL

Texturbol is a leading producer and exporter of polyester thread, cloth, and clothes. From plastic pellets imported from Mexico, the company employs top-of-the-line technologies and systems to manufacture high-quality products primarily for export to the United States (Fig. 3.17). Texturbol is highly committed to continuous improvement in all spheres of performance by applying the concept of Total Quality Management—quality control, environmental management, risk control, cost control, worker safety and compliance—and exemplifies how BTBC can support a sector leader to pave the way for others firms to follow suit. Texturbol's policy reflects management's keen awareness of the competitive challenges it faces vis-à-vis companies in other countries (especially China) and conformance



Figure 3.17 Battery of bobbins for polyester thread

with international manufacturing norms and practices under the WRAP (World Responsible Apparel Production) program required by its three main U.S. buyers. WRAP encompasses internationally recognized environmental, labor, safety, and legal standards that members and their suppliers must adhere to. Texturbol is regularly audited by independent, third-party auditors accredited under the WRAP program hired by its buyers.

A tour of Texturbol's manufacturing facilities is testament to the value the company places on environment, worker safety, and cleaner production in its drive to improve competitive performance and reduce risk. Under a pilot program sponsored by the CNI and Swiss Cooperation, Texturbol was one of four companies to undergo extensive internal audits and monitoring of raw material, energy, and water inputs and discharge of gases, wastewater, and solid wastes. The resulting

"Plan de Gestión Ambiental" approved under the RASIM regulation of Law 1333 is comprehensive and being applied. The CNI/Swiss Cooperation pilot program also included limited training for management and workers in EMS. Texturbol has also sponsored thesis students to prepare monitoring plans for noise and pollution abatement and worker safety as well as emergency action plans (Fig. 3.18). This is a good example of how BTBC I leveraged its support with other programs and projects, an approach that should be built upon by BTBC II.

Management is satisfied with its progress in EMS, industrial safety (Fig. 3.19), and corporate social responsibility initiatives but feels that these need to be more formally integrated with its quality and cost control systems, and identified this as a priority area for future collaboration with BTBC II. Other needs expressed by management to improve its environmental management capacity include the following:

- Additional cost-cutting through better energy conservation
- Improved condensation and vapor recovery systems
- Reduction of oil residues in its gas emissions
- Improved heat recovery from its wastewater and air emissions



Figure 3.18 P2—Internal recycling bins



Figure 3.19 Well-lit and ventilated sewing area with worker protection from dust and lint.

- Improved on-site wastewater treatment
- Documentation, monitoring, and training

To the extent that BTBC II will continue to assist larger textile firms like Texturbol, this company could continue to serve as a pilot for practices, systems, and procedures that could be emulated by other companies, large and small. Additionally, Texturbol appears to be an ideal candidate for ISO 9001, ISO 14001, and OHSAS 18001 certification to further enhance its competitiveness.

C. PROCESSED FOOD PRODUCTS—PRODUCTOS ECOLÓGICOS NATURALEZA S.A.

La Naturaleza is an integrated company specializing in natural herbal, fruit, mate, and health teas. La Naturaleza is an outstanding example of a forward-looking, dynamic company self-described by its owner as an “*empresa eco-social*,” an expression that encompasses economic vibrancy; ecological consciousness of the impact of its actions; and social responsibility to its suppliers, workers, buyers, and end-users of its products. A main challenge for the company is how to manage the increased costs related to doing business as an “*empresa eco-social*” (certifications, labor costs, raw material, specialized equipment, quality control, etc.). For La Naturaleza, the answer lies in continuous improvements in productivity, cost control, and development of ever-higher value-added products for export to more sophisticated markets. Its strategic plan to 2010 calls for La Naturaleza to become a leading national “*eco-social*” company with growing exports in international markets.

La Naturaleza has a full line of teas that are processed at a small plant in Sacaba. Its main market is still domestic (55 percent of total sales), but the company is rapidly growing exports to Colombia through a strategic alliance with a like-minded local distributor and is testing markets in Mexico, Europe, and Chile. Besides the dried fruits and herbs it produces from its organically certified farm in Tarata, La Naturaleza buys primary material from small producers: mangos (Vinto); pineapple (APAMI/Chapare); green tea (AgroTé/Chapare); black tea (Yungas). Although the market for organic teas, both domestic and export, is still nascent, La Naturaleza is positioning itself for market trends to move in this direction, especially in Europe and Brazil. As a consequence, it has set the goal to eventually produce only organic products, which poses special challenges if it is to continue to source primary material from small producers. La Naturaleza’s determination to do so is demonstrated by its support to the APAMI producer association, which has begun the process of organically certifying 50 ha of pineapple in the Chapare, an achievement that many tropical agronomists who work in the region thought not feasible due to pest and disease control, soil fertility, and flowering induction problems that traditionally require chemical inputs.

La Naturaleza has been aggressive in pursuing international certification of its suppliers, processing plant, and products as a fundamental pillar of applying its vision to become an “eco-social” firm. By the end of 2005, all suppliers and its processing plant will be on the path to organic certification under the IFOAM standard. This is being done through BoliCert, a well-established national organic service provider. (The growing interest in organically produced products in Bolivia, especially coffee and cacao, has spurred a competitive market for certification services. Besides BoliCert, BioLatina and IMO Control are two other national companies that are internationally accredited to offer organic certification services to the IFOAM standard.) Investment of organic production and certification of suppliers is being partially done with loans from PRODEM, which holds 36 percent of La Naturaleza shares.

ISO 9001 certification is in process and viewed as an essential part of the company’s goal to improve its competitive edge through tighter and more formal quality and cost control systems. For similar reasons, ISO 14001 and HACCP certification are scheduled by 2007. FairTrade, Solidarity Markets of Europe, and the European Fair Trade Association are other movements that promote “just trade” through adherence to internationally recognized standards. Prompted by market opportunities in Europe, particularly with its long-time client in Italy (CTM Italia), La Naturaleza is also interested in applying these “social responsibility” standards to its operations. Taken together, La Naturaleza is applying third-party certification as a way to give international market recognition to the “best management practices” it is dedicated to following in pursuit of its corporate vision.

BTBC I assistance to La Naturaleza was incipient when the first phase of the project ended and not directly tied to any of the “*empresa eco-social*” initiatives described above. The La Naturaleza business model and experiences offer many lessons that could be applied to other agro-industrial and food processing firms of all sizes that BTBC II may assist going forward. The firm’s majority stockholder prioritized possible future assistance in the following areas:

- Analysis and modernization of its present processing facilities, including cleaner production and energy audits
- Identification and penetration of organic export markets
- Upgrade its information technology for better cost, quality, and inventory control and marketing
- Product development
- Expand organic certification to new suppliers

To the extent that La Naturaleza and similar firms' operations extend upstream to small producer suppliers, there would appear to be ample opportunity for synergies with the MAPA and ARCo projects.

D. LEATHER GOODS—MACAWS

MACAWS is a major manufacturer of finished leather goods for export to the United States and elsewhere. Located in Cochabamba, the manufacturing plant is a modern facility and has the distinction of being the only company in Bolivia that is “triple certified” to ISO 9001, ISO 14001, and OHSAS 18001 standards by DNK (Det Norske Veritas) from Buenos Aires. The impetus for ISO 9001 was client driven and attained in 2002 with BTBC I assistance. On the other hand, ISO 14001 and OSHA 18001 certification were driven internally as another way to differentiate MACAWS in the market place, improve productivity, and demonstrate to workers, authorities, clients, and the general public its commitment to quality, worker welfare, and the environment. SA 8000 certification related to corporate social responsibility will be pursued in the future.

Operations at the manufacturing plant consist mainly of cutting, sewing, and finishing leather goods like cell phone carriers, belts, wallets, gloves, and the like. The plant is open, spacious, ordered, and clean. The most important waste stream is discarded leather trim and pieces that could be recycled as bonded leather products, a future project for the company. Management thought that collection and recycling unusable leather from the several manufacturing plants in Cochabamba could be the nucleus for cluster formation that could lead to improved efficiency and high quality for the sector as a whole and help it stay ahead of competitors, especially the threat posed by growing production in China.

ISO certifications do not extend upstream to suppliers where, especially in the case of leather, the environmental problems and health hazards from curing and tanning hides are notorious. Tanneries use a host of chemicals to produce “wet blue” leather: sodium sulfate, detergents, ammonia sulfate, enzymes, salt, formic and sulfuric acid, and chromium. Solid, liquid, and gaseous waste streams include: organic solids, oxidized sulfur compounds, toxic heavy metals (Cr), acid wastewater, organic solvents, precipitated proteins, H₂S (poisonous gas), and particulate matter. Treatment of wastes from tanneries concentrated in La Paz, Cochabamba and Santa Cruz ranges from nil to partial separation of solids (subsequently disposed in municipal landfills), and pretreatment of wastewater in oxidation ponds.

BTBC I did not work with tanneries, but should consider doing so in Phase II if the project continues support to the leather goods sector. By moving upstream, BTBC II would have an opportunity to interface with both suppliers of raw material and producers of finished products to address not only serious environmental and health problems from the tanning process but also the high

cost and variable quality of skins delivered to factories, factors that weigh heavily on export manufacturers. The MACAWS management suggested that one of its major suppliers, Curtiembre America, that also exports “wet blue” directly to China, would be a workable starting point.

E. JEWELRY—EXPORTADORES BOLIVIANOS

Exportadores Bolivianos is a larger manufacturer of gold jewelry located in a dense residential zone of La Paz. Management graciously took the BTBC visitors on an exhaustive tour of their factory and openly shared both their successes and future challenges to improving operations.



Figure 3.20 Jewelry work tables

Like Texturbol in textiles, MABET in wood products, and MACAWS in leather, market realities have impelled Exportadores Bolivianos to aggressively incorporate EMS, cleaner production, social responsibility, worker safety, and regulatory compliance into its broader business model as indispensable aspects of its risk control, cost control, and competitiveness strategies. In this instance, Wal-Mart and K-Mart are among Exportadores Bolivianos’ most important customers and require conformity to increasingly strict “*planes de adecuación*” with regular audits by third-party auditors hired from the United States to verify compliance with national and international standards for the environmental, worker safety, adequate work place conditions, and labor practices, including provisions against child labor. Exportadores Bolivianos’ U.S.-based parent company has clearly signaled that its Bolivian operations need to progressively institute measures eventually leading to ISO 9001, ISO 14001, and OHSAS 18001 certification. Furthermore, given its location and the potential for wastewater, noise, and toxic fumes generated from its operations to severely impact the health and well being of its neighbors, Exportadores Bolivianos is attentive to its social and regulatory compliance responsibilities. In sum, Exportadores Bolivianos’ very survival as a viable concern that employs more than 750 people will depend in large measure on its ability to put into practice EMS leading to a “four-C” outcome of conformity, cost-cutting, compliance, and corporate responsibility.



Figure 3.21 Assembling wax molds

Assistance to Exportadores Bolivianos under BTBC I focused on training and technical assistance in advanced jewelry-making techniques and finishing

processes. The firm has made direct investments in internal energy and cleaner production audits through CPTS, environmental management plans required under RASIM, and training for workers and management. It has also made capital investments in energy conservation, noise reduction, improved ventilation system, and systems to recover nitric and other acids from emissions and reduce NO_x levels that would otherwise pose serious health risks. The company has also participated in training in environmental monitoring offered through the CNI.



Figure 3.22 Nitric acid vapor condensers

As one of Bolivia's major exporters, Exportadores Bolivianos was one of the most important export clients of BTBC I. If collaboration continues under BTBC II, management identified the following priorities related to EMS and worker productivity:

- Advanced training in EMS, especially in documentation and monitoring
- Perform work place audits, including optimum work spacing, task rotation, lighting, ergonomics and other measures to improve productivity and occupational safety
- Assistance in specifying and sourcing processing and pollution control equipment
- ISO 9001, ISO 14001, and OHSAS 18001 certification



Figure 3.23 Soldering gold jewelry

SECTION IV

CREATING SYNERGIES

INTER-INSTITUTIONAL COLLABORATION FOR IMPROVED ENVIRONMENTAL MANAGEMENT AND COMPETITIVE PERFORMANCE

An important part of the present Environmental Review is to identify groups that offer services to support the adoption of EMS, certification, and cleaner production initiatives by exporters of all sizes. As the following demonstrates, numerous opportunities exist where BTBC II can join efforts to deliver training and technical assistance to enhance the performance of its export clients in these and other areas.

A. CLEANER PRODUCTION—CPTS; FUNDES

CPTS (*Centro de Promoción de Tecnologías Sostenibles*) is a leading Bolivian provider of cleaner production services to companies and organizations of all sizes. Institutionally, the CPTS is embedded in the CNI (*Cámara Nacional de Industria*) and has received support from USAID for seven years (the cooperative agreement with the USAID Environmental Office ending in September 2005 has been recently extended to September 2008). CPTS has also worked with the Alternative Development program to provide assistance to more than 30 processing plants and a number of hospitals and hotels.

CPTS approaches cleaner production issues as an integral part of an organization's "Total Quality Management" program and applies a step-wise methodology in its technical assistance:

1. Preliminary visit to size up the extent of a company's interest in cleaner production and identify obvious opportunities
2. Conclusion of a service contract with strict confidentiality clauses
3. Internal audit and benchmarking:

- Material balances
 - Energy consumption
 - Water use and discharge
 - Organization of production chains and technologies
 - Inventory systems
 - Worker safety and emergency preparedness
 - Infrastructure
 - Human resources
 - Regulatory compliance
4. Report with detailed recommendations, financial analysis, and investment plan with a goal of a minimum return on investment of 11 percent. The report can be the starting point for a more comprehensive EMS, eventually leading to ISO 14001 certification as in the case of PRAXAIR and Aceites Finos.
 5. Training
 6. Follow-up visits at 6 and 12 months

CPTS has provided services to more than 80 companies and organizations across a wide spectrum of sectors and enterprises scales. CPTS typically charges US\$300- 5,000 for these services depending on the company's size and complexity of its operations.

Together with FUNDES, CPTS has worked on publication of comprehensive cleaner production manuals for several of Bolivia's more important sectors highly relevant to BTBC II, where big gains in efficiencies, P2, and safety can be achieved: wood products, textiles, tanneries, abattoirs, and meat processing. The manuals, however, are technical and appear not to be user-friendly for most SMEs. The manuals will be the basis for drafting legal environmental norms and regulation specific to sectors that will be promulgated by VICE (Gabriela Murillo is the main contact) as part of the RASIM regulatory framework under Bolivian environmental law. BTBC II should collaborate with CPTS and FUNDES to produce abridged versions of the manuals specifically for SMEs.

FUNDES-Bolivia is part of the FUNDES network in Latin America and is also a leader in the promotion of cleaner production technologies. (During BTBC I, FUNDES assisted in upgrading designs of artisan weavings.) FUNDES-Bolivia has a network of more than 60 technicians based in La Paz, Cochabamba, and Santa Cruz, some of whom have been trained in cleaner

production by FUNDES experts from Chile, who offer a variety of services that can take a company through pre-audits and certification:

- Internal cleaner production audits
- Cost control
- Training
- Integrated services to production chains
- Cluster formation

FUNDES also has a special fund (*Fondo de Asistencia*) to help SMEs finance cleaner production initiatives.

BTBC II should enter into discussions with CPTS, FUNDES, and other cleaner production and certification providers on how to jointly support cleaner production, energy, and natural resource and pollution audits as a basic constituent of its assistance and training package to client firms. Associated costs would be covered under the same cost-sharing arrangements used to deliver other technical assistance. Financially sound investments in cleaner production, pollution abatement, work place safety, or certification should be permissible under the proposed Authority (DCA) credit guarantee planned in BTBC II. There currently are DCA for these purposes in Peru and Central America from which to draw lessons.

B. SPECIAL ASSISTANCE TO SMES IN CLEANER PRODUCTION— CÁMARA DEPARTAMENTAL DE LA PEQUEÑA INDUSTRIA Y ARTESANÍA—COCHABAMBA AND SANTA CRUZ (CADEPIA)

CADEPIA–Santa Cruz and Cochabamba recently concluded environmental projects for SMEs funded by DANIDA and GTZ. *Proyecto Danesa de Apoyo al Medio Ambiente* was organized around four components:

1. General awareness of the relation between the environment and competitiveness
2. Profitable environmental management
 - Efficient use of inputs
 - Market standards
 - Application of environmental criteria to cost management
3. Occupational safety under the Bolivian *Sistema de Gestión de Seguridad y Salud Ocupacional* (SYSO) standard
4. Pilot actions in different sectors, focusing on simple modifications
 - Illumination

- Ventilation
- Noise reduction
- Layout
- Protective gear and safety training

Results include direct financial benefits, better organization, and improved occupational security and health. Pilot projects demonstrated payback periods that ranged from 4 to 12 months for investments that reduce energy and water use, raw materials, and lost worker-days. Access to credit by SMEs is the biggest obstacle to replication of pilot projects to a wider number of firms.

The GTZ-funded *Programa Mercado Verde* assisted SMEs to access green markets, especially in Europe. Surveys showed that more than 20 percent of SMEs in Santa Cruz already export, particularly those in the wood, apparel, food, and jewelry industries. It was estimated that at least 40 percent of SMEs have the potential to penetrate “green markets” with modest measures to improve operations. For example, many smaller wood processors and carpentry shops already use FSC-certified logs and lumber, but are not themselves CoC certified.

C. SUPPORT TO THE INDUSTRIAL SECTOR—CÁMARA NACIONAL DE INDUSTRIA (CNI), CÁMARA DEPARTAMENTAL DE INDUSTRIA DE COCHABAMBA (CDIC), CÁMARA DE INDUSTRIA, COMERCIO, SERVICIOS Y TURISMO DE SANTA CRUZ (CAINCO)

The national and departmental industrial chambers of industry are leaders in the promotion of sound environmental stewardship, occupational safety, and risk management, but this was not always the case. The extent to which these organizations have come to recognize over the last decade the importance of these themes to their members’ competitiveness is nothing short of astounding. The CNI played a leadership role in working with national authorities by forming commissions to help draft, negotiate, and endorse application by members of the RASIM regulatory regime under the Environment Law. RASIM simplifies environmental evaluation and reporting procedures and introduces the concept of prioritizing remedial measures and “continuous improvement,” hallmarks of EMS approaches, thus allowing firms to meet environmental norms gradually, in accordance with an approved “*Plan de Gestión Ambiental*” (environmental management plan). As a consequence, compliance has ballooned with on-site application of prescribed mitigation improving.

The *cámaras* view cleaner production and EMS as fundamental business practices and support this with various programs and initiatives. The CNI sponsors the CPTS and is working to make the CPTS an independent foundation. More than 200 consultants have been trained through the CNI in environmental audits, monitoring, P2, and EMS. The *Programa Protección*

Ambiental Industrial en Bolivia financed by Swedish cooperation has trained 15 high-level environmental specialists. Cleaner production initiatives have evolved into an innovative initiative by the CNI to establish a mechanism for trading industrial residues and waste through a virtual information and marketplace. The *Bolsa de Residuos Industriales* (BRI) aims to turn one firm's waste into another firm's source of raw material, a win-win scenario for both businesses and the environment. The BRI plans to introduce trading in industrial wastes generated from the textile, wood, paper, food, chemical, metal works, and non-metallic sectors. BRI is currently USAID-funded and DANIDA will continue funding it next calendar year. (www.residuos.org.bo)

As markets evolve, certification is gaining importance in the CNI; 14 Bolivian firms are ISO 14001 certified. The CNI has been called on to assist Bolivian negotiators address environmental issues in Andean-American Free Trade Agreement negotiations and believes that SA 8000 standards for corporate social responsibility may become an issue in the Andean Trade Preference and Drug Control Agreement.

CDIC and CAINCO have in-house, permanent advisors to assist members with environmental aspects of their operations and sponsor conferences, courses, and seminars on EMS, cleaner production, and market standards. It is telling how the bi-annual environmental symposium organized by the CDIC has evolved over the years from a focus on regulatory compliance to market-led requirements and incentives. Finally, CNI houses one of the largest collections in Bolivia of literature and information on EMS, cleaner production, and related topics.

D. FINANCING FOR CLEANER PRODUCTION AND EMS—FUNDACIÓN PRODEM, FUNDA-PRO

SMEs face special challenges to finance investments in cleaner production technologies, EMS, and regulatory compliance. PRODEM is a second-tier financial institution that invests in SMEs with capital provided by the Inter-American Development Bank (IDB) and other sources. This is done either through loans or taking a direct equity stake in an SME through its *Fondo Empresarial Social*. An example of the latter is PRODEM's investment in La Naturaleza, targeted to assist pineapple suppliers to become organically certified. Technical assistance is typically a part of the investment package.

As a lender of IDB capital, PRODEM must comply with IDB environmental policies and national regulations. Access to technical assistance is available (up to US\$ 3,500) to help SMEs obtain their RAI or, if already compliant, to develop Integrated Management Systems that could include EMS, cleaner production, or certification. Some of the companies PRODEM has assisted in this area include La Naturaleza, Multi-agro, AGRIZAFV, ASOMEX, and Alimentos S.A.

FUNDA-PRO is another second-tier financial institution that manages a special cleaner production credit line—*Fondo Biomasa y Producción más Limpia*—to spur investment to improve energy efficiency and conservation by SMEs. The credit line totals US\$ 1 million with capital from the World Bank and FUNDA-PRO. The *Fondo* has evolved from its original intent and design to aid rural households to convert from wood to alternative energy sources, and thus decrease deforestation. The Fondo is now available for a wide variety of cleaner production investments through FUNDA-PRO's network of 22 intermediate credit institutions. Under an agreement with CNI, loan applications are technically reviewed by CPTS without additional cost to SME applicants.

Although cleaner production can be highly beneficial for SME operations, the *Fondo* is nonetheless moribund. The *Fondo* has not been strongly promoted and SMEs have little knowledge of cleaner production concepts and applications. The cost of technical assistance to identify opportunities and prepare loan applications remains a barrier for SMEs. Finally, as with SME access to credit for other investments, collateral requirements, high interest rates, and short loan periods often prove difficult to surmount. With technical assistance and training from BTBC II, SME export clients could be in a better position than other SMEs to tap this credit line. Likewise, the DCA to be developed under BTBC II might be extended to the *Fondo* to mitigate barriers to access by SMEs.

E. TRAINING—UNIVERSIDAD CATÓLICA BOLIVIANA SAN PABLO (UCB); UNIDAD DE PRODUCTIVIDAD Y COMPETITIVIDAD (UPC)

During BTBC I, specialized and general training was delivered to prepare SMEs to make the jump to export markets. Training was done through various institutions including UCB that designed and delivered specialized courses focused on development of business strategies for SMEs located in El Alto for owners and managers with little formal education or business training. The courses included the following modules:

- Basic accounting and finance
- Marketing
- Business strategies
- Management and leadership
- Business model simulations

Other training conducted during BTBC I through UPC and other organizations concentrated on specific productive processes (design, quality control, production systems, etc.), tools and strategies to help SMEs to enter into or increase sales in export markets and compete in public tenders.

No formal training in EMS was conducted during BTBC I, representing a missed opportunity for SMEs that would benefit from at least an introduction to the benefits of applying simple environmental self-assessment tools and practices to their operations. In discussions with UCB and other institutions that could potentially provide training during BTBC II, the following themes and topics were manifest as having particular relevance to SMEs:

- How to conduct a “self-environmental assessment” of current practices
- Inventory control, handling, and disposal of toxic substances
- Benefits and costs of cleaner production technologies
- Introduction to market standards
- How to (painlessly) comply with environmental regulations and why this is important.

It cannot be stressed enough how the competitiveness of SMEs hoping to enter export supply chains will increasingly depend on their environmental management performance. This facet of competitiveness should be built in to their strategic thinking, business models, market plans, and production and control systems at the earliest opportunity.

F. OTHER OPPORTUNITIES FOR SYNERGIES: *UNIVERSIDAD PRIVADA DE SANTA CRUZ—UPSA INSTITUTO BOLIVIANA DE NORMALIZACIÓN Y CALIDAD—IBNORCA*

Several other programs and organizations offer services and assistance in EMS and certification, including UPSA that has a number of programs that could be of service to BTBC II export clients:

- Environmental monitoring and other laboratories certified to HACCP and ISO 9001 (TUV-CERT No. 01-100-98167; ISO 17025 in future)
- CENACE—continuing education in “Total Quality Control” including EMS
- Air quality monitoring certified to WHO standards
- RASIM compliance
- P2
- Masters program in environmental management (supported by COSUDE)
- Wood laboratories

IBNORCA is a not-for-profit organization that has several programs and services related to export and national markets, quality control, and EMS that are highly relevant to BTBC II. IBNORCA is the only accredited ISO 9001 certifier in Bolivia. It also offers ISO 14001 and OHSAS 18001 certification

services in conjunction with UNIT-AENOR, an Uruguayan firm accredited to these standards. To date, 25 operations have been ISO 9001 certified by IBNORCA and two firms each under ISO 14001 and OHSAS 18001.

IBNORCA leads a program to promote national standards and norms for wood, textile, leather, and food exports. Compliant companies can earn the “IBNORCA Seal of Conformity” and thus participate in public tenders for the provision of these goods and supplies. IBNORCA offers audit and conformity services and administers the “Seal of Conformity” trademark. Unfortunately high audit and trademark-use costs are squeezing many SMEs out of the public sector market as the GOB increasingly applies this standard. This could be a concern for BTBC II in its training and technical assistance programs aimed at strengthening the capacity of SMEs to compete in GOB procurements. The NormExport program operated by IBNORCA aims to help SMEs to overcome these obstacles.

SECTION V

INTERNATIONAL CERTIFICATION

TAKING IT TO THE NEXT LEVEL

Grades and standards are the language of trade that developing country producers and exports cannot ignore. Standards are both complex and evolving, incorporating features that go beyond simple quality, to the spheres of safety, environmental management, and human rights.⁴ As visits to BTBC I client firms clearly show, enterprises large and small will have to increasingly pay heed to such international grades and standards if they hope to compete in these markets.

The dearth of official national standards and norms and weaknesses in environmental regulatory procedures can be partially surmounted by the application of international standards, norms, and certifications that may affect Bolivian businesses in select value chains. These international standards run the gamut from those developed by international organizations such as ISO, FAO, WHO, etc., to the standards of trade and commodity organizations and those of individual retail organizations like WRAP for the apparel sector. The most pertinent to BTBC-supported operators and producers are briefly described below.

⁴ Triple Standards: Integrating Developing Country Producers into the Value Chain—A Quick Reference Guide to Environmental, Quality and Social Standards. Chemonics International, Inc., 2003. www.marketstandards.chemonics.net.

A. ISO—INTERNATIONAL ORGANIZATION FOR STANDARDIZATION ⁵

ISO is the world's largest developer of standards. Although ISO's principal activity is the development of technical standards these have important economic and social repercussions. The International Standards which ISO develops are useful to industrial and business organizations of all types: governments and other regulatory bodies; trade officials; conformity assessment professionals; suppliers and customers of products; services in both public and private sectors and; consumers and end users. ISO standards contribute to making the development, manufacturing and supply of products and services more efficient, safer and cleaner. They make trade between countries easier and fairer, and provide governments with a technical base for health, safety and environmental legislation that are also increasingly applied in international trade agreements.

The ISO 9000 and ISO 14000 standards are known as “generic management system standards,” meaning that the same standards can be applied to any organization, large or small, whatever its product—including whether its “product” is actually a service—in any sector of activity, and whether it is a business enterprise, a public administration, or a government department.

VOLUNTARY

ISO standards are voluntary. A certain percentage of ISO standards—mainly those concerned with health, safety, or the environment—has been adopted in some countries as part of their regulatory framework, or is referred to in legislation for which it serves as the technical basis. Although voluntary, ISO standards may become a market requirement, as has happened in the case of ISO 9000 quality management systems, or of dimensions of freight containers and bank cards.

MARKET-DRIVEN

ISO develops only standards for which there is a market requirement. The work is carried out by experts from the industrial, technical, and business sectors that have asked for the standards, and that subsequently put them to use. These experts may be joined by others with relevant knowledge, such as representatives of government agencies, consumer organizations, academia, and testing laboratories.

CONSENSUS

Although ISO standards are voluntary, the fact that they are developed in response to market demand, and are based on consensus among the interested parties, ensures widespread applicability of the standards. ISO takes account both of evolving technology and evolving interests by requiring a review of its standards at least every five years to decide whether they should be maintained, updated, or withdrawn.

⁵ The discussion on ISO standards is excerpted from www.iso.org

A1. ISO 9001/2 QUALITY MANAGEMENT STANDARDS ⁶

ISO 9000 is concerned with “quality management” or what the organization does to enhance customer satisfaction by meeting customer and applicable regulatory requirements and continually to improve its performance in this regard. The ISO 9000 series (now up to date with the 2001: 9002 series), is the original ISO quality standard and its elements remain at the core of the other ISO series. There are more than 350,000 companies certified to the ISO 9001/2 standard and its backbone is the basis for a vast auditing industry that has been built to provide independent, third-party certification to supply chains worldwide.

A2. ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEM STANDARD

Based on the same system principles as ISO 9001/2, the ISO 14000 series remains the basic world standard for environmental management systems. ISO 14000 is primarily concerned with “environmental management” or what the organization does to minimize harmful effects on the environment caused by its activities, and continually to improve its environmental performance.

Many of the more specific standards, for example those from individual production or retail organizations, are based on the principles of these more generic standards, to the point of frequently adopting the same language. Since the lack of good and appropriate management systems is perhaps the most common deficiency among BTBC client firms, the principles of ISO 14000 provide significant potential to improve the operations of the firms, product quality, and export potential, while at the same time moving toward improved environmental responsibility and compliance. The environmental aspect is also increasingly important in meeting the requirements of international markets and marketing organizations. The type of verification required for various certifications such as “FairTrade” and “Organic” certification have been inspired by these standards.

A3. OHSAS 18001—OCCUPATION HEALTH AND SAFETY ASSESSMENT SERIES (OHSAS) ⁷

OHSAS 18001 is an Occupation Health and Safety Assessment Series for health and safety management systems. It is intended to help organizations control occupational health and safety risks. It was developed in response to widespread demand for a recognized standard against which to be certified and assessed.

The OHSAS specification is applicable to any organization that wishes to:

- Establish a management system to eliminate or minimize risk to employees and other interested parties who may be exposed to

⁶ www.iso.org/iso/en/iso9000-14000

⁷ www.ohsas-18001-occupational-health-and-safety.com

occupational, health, and safety (OH&S) risks associated with its activities

- Verify a firm's conformance with its own OH&S policy
- Demonstrate such conformance to others
- Implement, maintain, and continually improve an OH&S management system
- Seek certification/registration of its OH&S management system by an external organization

Essentially, OHSAS helps to minimize risk to employees, improve an existing OH&S management system, demonstrate diligence, and gain recognition, the sum benefits of which can be substantial.

B. SA 8000—SOCIAL ACCOUNTABILITY STANDARDS⁸

One standard related to social responsibility of businesses, particularly with regard to child labor, health and safety of employees, the right of employees to organize, etc. is Social Accountability (SA) 8000. There are others such as AccountAbility 1000 and several that are manufacturing-specific (i.e., WRAP for textiles and garments). Most of these standards are organized around the ISO 9000/14000 series and require similar systems and document controls, policies, management review, and public disclosure elements. Some, such as the Rainforest Alliances "Sustainable Agricultural Network–SAN" certification,⁹ are hybrids that apply both social and environmental norms.

The FairTrade Labeling Organization (FLO)¹⁰ provides a standard focused on labor conditions and other aspects of social responsibility to benefit small farmers (producer associations) and wage workers. Reference to environmental management is minimal, but "producers are expected to protect the natural environment and to make environmental management part of farm management." Like many others, the FairTrade standard requires that producers implement integrated pest management to minimize the use of pesticides and it encourages producers to work toward organic certification.

C. FSC—FOREST STEWARDSHIP COUNCIL¹¹

The FSC is one of several internationally recognized standards for responsible management of the world's forests. FSC brings people together to find solutions to the problems created by bad forestry practices and to reward good forest management.

⁸ www.sa8000.org

⁹ www.ra.org

¹⁰ www.fairtradeinternational.org

¹¹ www.fsc.org

FSC is a stakeholder-owned system for promoting responsible management of the world's forests. Through consultative processes, it sets international standards for responsible forest management and accredits independent third-party organizations that certify forest managers and forest product producers. Its trademark provides international recognition to organizations that support the growth of responsible forest management and allow consumers to recognize products derived from certified forests and manufacturing operations worldwide. FSC undertakes marketing programs and information services that contribute to the mission of promoting responsible forestry worldwide.

During the past 10 years, 733 operations covering almost 60 million ha in 65 countries have been certified according to FSC standards, while several thousand products are produced using FSC certified wood that carry the FSC trademark. FSC operates through its network of National Initiatives in more than 34 countries. Bolivia leads the world in the tropical forest area certified to FSC standards, recently surpassing the 2 million ha mark.

D. COMMODITY/RETAILER-SPECIFIC STANDARDS

In response to consumer demands and pressure from groups concerned with environmental, socially responsible corporate behavior and worker rights, there are a growing number of sector-specific standards applied to buyers and retailers. Wal-Mart and K-mart have employed third parties to audit the operation of Exportadores Bolivianos with regard to compliance with national environmental law, application of EMS, work-place conditions and worker safety, and adherence to socially responsible policies. Setting policies and demonstrating progress in their implementation through periodic independent audits are conditions for continued access to these significant markets.

The Worldwide Responsible Apparel Production program (WRAP¹²) has particular significance for Bolivian textile and apparel exporters and BTBC II. WRAP is a civil society organization dedicated to promoting humane, ethical, and lawful conditions and practices in manufacturing facilities around the world. The organization achieves this in two ways. First, the Certification Program certifies individual factories for compliance with WRAP's principles and procedures concerning, fair pay, workers' dignity, safe and secure conditions, and environmental impact. The Apparel Certification Program has operated since 2000; programs for other industries will be added in the future. Second, various training programs educate workers, factory managers, government inspectors, and others about issues related to global supply chains and their workers. In Bolivia, TEXTURBOL, a BTBC I client export firm, is applying this standard to conform with requirements of its three main U.S. buyers and is being independently audited on a regular basis.

¹² The discussion on WRAP is excerpted from www.wrapapparel.org

- Under WRAP, apparel producers are accountable for their global production practices to consumers, retailers, governments, and others. Several organizations are dedicated to setting manufacturing standards, particularly regarding human rights. WRAP is unique among apparently similar organizations because it combines all of the following important attributes:
 - Market-driven, high standards
 - Independent from industry
 - Factory-based
 - Eliminates duplication
 - Results oriented

The objective of the Apparel Certification Program is to independently monitor and certify compliance with the following standards, ensuring that a given factory produces sewn goods under lawful, humane, and ethical conditions. It is not enough to subscribe to these principles; WRAP monitors the factory for compliance with detailed practices and procedures implied by adherence to these standards.

Compliance with Laws and Workplace Regulations—Comply with laws and regulations in all locations where they conduct business.

Prohibition of Forced Labor—Not use involuntary or forced labor, indentured, bonded, or otherwise.

Prohibition of Child Labor—Not hire any employees under the age of 14, or under the age interfering with compulsory schooling, or under the minimum age established by law, whichever is greater.

Prohibition of Harassment or Abuse—Provide a work environment free of harassment, abuse, or corporal punishment in any form.

Compensation and Benefits—Pay at least the minimum total compensation required by local law, including all mandated wages, allowances, and benefits.

Hours of Work—Hours worked each day and days worked each week shall not exceed the legal limitations of the countries in which sewn product is produced. Manufacturers of sewn product will provide at least one day off in every seven-day period, except as required to meet urgent business needs.

Prohibition of Discrimination—Employ, pay, promote, and terminate workers on the basis of their ability to do the job, rather than on the basis of personal characteristics or beliefs.

Health and Safety—Provide a safe and healthy work environment. Where residential housing is provided for workers, apparel manufacturers will provide safe and healthy housing.

Freedom of Association & Collective Bargaining—Recognize and respect the right of employees to exercise their lawful rights of free association and collective bargaining.

Environment—Comply with environmental rules, regulations, and standards applicable to their operations, and observe environmentally conscious practices in all locations where they operate.

Customs Compliance—Comply with applicable customs law and, in particular, establish and maintain programs to comply with customs laws regarding illegal transshipment of apparel products.

Security—Maintain facility security procedures to guard against the introduction of non-manifested cargo into outbound shipments (e.g., drugs, explosives, biohazards, and/or other contraband).

E. FOOD SAFETY AND OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Standards with regard to working conditions, use of protective gear, exposure to chemicals, noise, or other conditions that might compromise workers health:

- International Labor Organization Occupational Safety and Health Guidelines provide both general guidance and codes of practice addressing both specific sectors (open mines, construction, forestry), and specific issues including chainsaws, escalators, noise and vibration, and radiation.
- The U.S. Occupational Safety and Health Administration has an even longer list of specific sectors and topics on which it has standards that serve as regulations for industry in the United States.

Standards related to hygiene and handling of food products, purity, additives, etc.:

- *Hazard Analysis and Critical Control Point (HACCP)* —The joint standard on food safety of the U.S. Food and Drug Administration and the Center for Food Safety & Applied Nutrition.
- *CODEX Alimentarius*—The joint standard of FAO and WHO on food safety. Among the CODEX Alimentarius are chapters devoted to different types of food products. For example, the General Norm for Juice and Fruits details standards with regard to sugar, ethanol,

contaminants, labeling, containers, use of concentrates and additives, and sampling and analysis.

SECTION VI

A ROADMAP TO ENHANCE COMPETITIVENESS

PRINCIPAL FINDINGS AND RECOMMENDATIONS

The thrust of BTBC I was to rapidly assist Bolivian exporters to grow, thus creating jobs and reducing poverty. To accomplish this, BTBC I often helped client firms address worker safety and environmental issues, essential for any company that is trying to export into demanding world markets. Support to firms to meet certification standards, better organize operations, and manage raw material inputs and waste streams were valuable contributions that, together with other programs, donors, and client businesses, laid the foundation for systematic, high-impact measures by BTBC II to help Bolivian companies, SMEs, and exporters meet rigorous health, safety, and environmental standards.

Facilitation of capacity building in environmental management systems should be a priority. In many cases, this will contribute as much, sometimes more, than anything BTBC II can do to improve competitiveness and long-term enterprise viability. Efforts to improve environmental performance should be done in an integrated manner in the context of firms' overall business strategy, not as an add-on to comply with USAID and national regulations.

Conformance with market standards, regulatory compliance, cost savings, and "corporate" responsibility in the broadest sense, the hallmarks of environmental competitiveness, should be the impetus for enterprises to invest the resources needed to improve performance.

Every effort has been made to present findings and recommendations that are objective, practical, results-oriented, and within the technical scope and financial reach of the BTBC II project. The recommendations should be discussed with project staff, USAID, partners, and stakeholders to decide how

best to implement them. Together, the findings and recommendations seek to move BTBC II from an “environmental compliance” frame of mind to an “environmental management” framework that contributes directly to achievement of project objectives, goals, and hard target indicators, the long-term growth of enterprises, and fuller regulatory compliance.

The starting point for this effort is to strengthen the internal capacity of BTBC II in environmental competitiveness issues and market standards issues through training of staff and cooperating organizations to define ways to routinely incorporate these themes into project operating procedures and those of their stakeholders and client firms. This will require a full commitment BTBC II and USAID management if these and other recommendations are to be meaningfully translated into concrete actions. This will also require a commitment to make resources already available for short- and long-term technical assistance, specialized training, and setting up internal screening procedures useful to project staff and client firms alike to identify risks and opportunities. At the conclusion of the recommendations, an illustrative budget is proposed for achieving this end.

A. PRINCIPAL FINDINGS AND CONCLUSIONS

1. The ability of BTBC-supported producers to enter and remain competitive in export markets will increasingly depend on their ability to apply international practices and standards for quality, health, and environment. Some product lines are very sensitive to consumer and buyer demands for safety and assurances that they have been produced in an environmentally and socially responsible manner. These factors will become increasingly important if BTBC II expands into the processed foods and tourism sectors.
2. The BTBC team and a majority of client export firms visited demonstrate both a high level of awareness of the actual and potential environmental impacts of ongoing operations and a determination to proactively address them. To its credit BTBC I chose to work with industry leaders like MACAWS, Texturbol, MABET, and Exportadores Bolivianos, forward-looking companies spurred by their markets to adopt environmental management practices that serve to improve productivity, lower risks and costs, and better position them in very competitive and fluid markets. These and other companies assisted by BTBC I embody numerous examples of best practices to prevent, reduce, or mitigate negative environmental impacts and workplace risks. They serve as examples for their peers and offer the opportunity to extend these practices to SMEs as they are brought into export chains.
3. The range of knowledge and experience of client firms assisted by BTBC I in environmental management systems varies widely, ranging from firms that are certified to internationally recognized standards

(ISO, WRAP, FSC) to other, usually smaller firms, that are only beginning to appreciate how things such as certification may affect their operations. In some cases, BTBC I has been instrumental in this process and should be commended for meeting head on the challenge of addressing the environmental competitiveness issues facing SMEs, a theme that will take on added significance in BTBC II.

4. BTBC helped some companies obtain international certification. The premier example is industry leader MACAWS, which was certified in ISO 9001 and OHSAS 18001, making it the first Bolivian company to obtain the latter certification in occupational safety and health. MACAWS has since moved to implement ISO 14001 and recently obtained certification under this standard.
5. In the wood products sector, BTBC has been particularly successful in assisting sawmills and drying operations implement FSC practices leading to certification, improved industrial safety, increased efficiency in wood-drying, and other manufacturing processes leading to reduced waste and energy conservation. BTBC I also encouraged the use of alternative wood species, which has positive upstream impacts related to forest management.
6. Although documentation is uneven, most firms assisted under BTBC I seem to be compliant with Bolivian environmental law (Law 1333). The Reglamento Ambiental del Sector Industrial y Manufactoreo (RASIM) procedures -promulgated in 2002 have proven to be especially practicable in helping firms systematically progress to improve their environmental performance and compliance.
7. The operations of some BTBC I client firms still assume a high level of risk posed by poor environmental and safety practices. Though not caused by or exacerbated by BTBC I interventions, there are cases where current operations of assisted firms have precarious working conditions, are causing locally important environmental impacts, and are incurring additional operating costs. Following are the most significant environmental and worker safety issues faced by client firms as expressed by project technical staff, company managers, and observed during site visits:
 - Weak accounting of environmental, safety, and social aspects in competitiveness analyses of the value chains and development of assistance packages for client firms
 - Inadequate handling, storage, and disposal of hazardous inputs and wastes
 - Inadequate ventilation and lighting

- Lack of, or improper safety equipment
 - Inadequate treatment of liquid and solid wastes
 - Probable upstream impacts from suppliers' operations, particularly in the leather, jewelry, and wood sectors
 - Uneven knowledge by plant managers and firm owners of EMS-based approaches and international certification programs
 - Little or no training of managers and personnel to improve quality, environmental and social responsibility, health and safety, and other competitive criteria
8. Measures approved in the IEE have been partially implemented during BTBC I. While BTBC I provided assistance in cleaner production and promotion of environmental measures that would open access to more sophisticated and demanding markets, this was not done systematically across sectors or firms. Also, assessments of potential environmental impacts or effects on equity of proposed interventions were done informally and on an ad hoc basis, rather than by application of simple, formal screening procedures. As a result, many opportunities to enhance the competitive position of client firms were overlooked. Some firms continue to be overly exposed to legal, health, and market risks due to poor environmental performance.
 9. There is uneven knowledge within BTBC staff of international market standards and certification systems for environmental management, labor, consumer safety, and social performance and how these norms might be harnessed to advance BTBC II objectives. Similarly, environmental, safety, and social issues, whether from a normative (22 CFR Reg. 216, Bolivian Law 1333, Bolivian Law 1700) or competitive perspective, had not been routinely internalized in BTBC I operations. There is a vital need to do so during BTBC II.
 10. The expansion of interventions under BTBC II in number of firms and new sectors (tourism, processed agricultural products, natural pharmaceuticals) presents new opportunities and risks that call for dedicating more attention and resources to EMS issues in business plans.
 11. A wide range of environmental management and related services, studies, manuals, and management tools are available in Bolivia through both the public and private sectors that could be more fully leveraged during BTBC II. There are also successful examples of international certification in Bolivia with national companies that offer certification services (IFOMA, FairTrade, ISO 9001/14001, FSC).

12. The International Organization for Standards (ISO) and other standards bodies such as Social Accountability 8000 are increasingly providing governments with the technical base for health, safety, and environmental legislation and bilateral and multilateral trade negotiations. This may be important in Andean-American Free Trade Agreement negotiations and Andean Trade Preference and Drug Control Agreement issues that BTBC II may become involved in.

B. PRINCIPAL RECOMMENDATIONS

1. BTBC II should verify that all client firms are compliant with Bolivian environmental law (No. 1333) and, in the case of the forest product enterprises, Bolivian forestry law (No. 1700). As with other information required by BTBC for enrolling firms in assistance programs, client firms should present copies of documents supporting compliance (*Licencia Ambiental, Registro Ambiental Industrial, Certificado Forestal de Origen, Aprobación de Plan de Manejo Forestal*, etc.). Firms that cannot demonstrate compliance with national environmental regulations, a recognized problem particularly for smaller enterprises, should be required to do so within a reasonable timeframe once they enter the BTBC II program.
2. Increasingly strict environmental, worker, and consumer safety and social responsibility practices and norms by sophisticated and demanding export markets require that these considerations become a fundamental and integral part of client firms' competitive models, business plans, and general operating procedures. Work on this should begin early during BTBC II, starting with initial contacts, "competitiveness benchmarking," and use of other diagnostic tools.
3. Openness and "buy-in" by top management to improve environmental, safety, and social performance should be a criterion used by BTBC II to decide which firms to accept into its assistance program.
4. As with other competitiveness factors, an approach of "continuous improvement" should ground specific interventions by BTBC II and client firms in EMS with the goal of instilling the central role that environmental, safety, and social considerations play in enterprises' ability to compete in national and international markets.
5. A full-time national environmental management advisor should be hired by the project for at least a 12-month period. This advisor would be responsible for internalizing EMS, worker, and consumer safety, and social responsibility concerns and opportunities routinely into all project operations: planning, implementation methodologies, training, technical assistance, market development, Development Credit Authority (DCA)

and Global Development Alliance (GDA) initiatives, monitoring, and evaluation.

6. Synergies between BTBC II and other projects, programs, and institutions should be maximized to take advantage of certification, cleaner production, technical assistance, and training services. Key counterparts and collaborators could include: *Cámara Nacional de Industria (CNI)*, *Cámara Departamental de Industria de Cochabamba (CDIC)*, *Cámara de Industria, Comercio, Servicios y Turismo de Santa Cruz (CAINCO)*, *Instituto Boliviano de Normalización y Calidad (IBNORCA)*, *Universidad Privada de Santa Cruz (UPSA)*, *Cámara Departamental de la Pequeña Industria y Artesanía (CADEPIA)*, *Centro de Promoción de Tecnologías Sostenibles (CPTS)*, *Centro Amazónico de Desarrollo Forestal (CADEFOR)*, and FUNDES. The environmental management advisor would take the lead on strengthening interinstitutional cooperation in these areas.
7. Although admittedly complicated, BTBC II should investigate opportunities to work with FUNDA-PRO to stimulate demand by client export firms for its credit line for cleaner production investments: *Fondo de Biomasa y Producción más Limpia*. Consideration should be given to ways that a DCA facility might be extended to this credit line managed by FUNDA-PRO to lower access barriers by SMEs.
8. Environmental management systems, national regulatory compliance, and market standards should be central themes in BTBC training modules. Simple technical manuals and extension materials on these topics should be developed and distributed to client export firms. These could be based on the environmental and cleaner production guides already completed by CPTS and FUNDES for the tanneries, wood products, and textile sectors.
9. Specialized, higher level training should be done early in BTBC II to familiarize project staff, business center operators, business trainers, and top management of client firms with the following:
 - Cleaner production
 - Pollution prevention (P2) and control
 - EMS and risk assessment
 - Market standards and grades
 - Regulatory compliance
10. The pool of national technical expertise for BTBC II assistance programs should be expanded to include advisors in EMS, cleaner production technology, market standards and certification, worker safety, and consumer health.

11. While the recommended Environmental Threshold Decision approved for the IEE for BTBC I is still valid for BTBC II, the IEE should be amended to account for the broader scope and expanded activities contemplated under BTBC II. Specifically, the IEE should more precisely define measures and conditions for each value chain.
12. The user-friendly Quality, Workplace, Environment and Safety Tool (QWEST), an environmental diagnostic and decision-making tool currently under development by Chemonics, would help projects analyze their partner/client operations and develop “environmental competitiveness” plans that address the four “Cs” of competitiveness, cost-savings, compliance, and corporate responsibility in an integrated fashion. With a modest investment to complete development, QWEST would be an invaluable tool for BTBC II staff, business centers, and clients to identify and prioritize environmental problems affecting operations and urgent actions. Cost-sharing arrangements might be considered as QWEST would be a valuable tool for other USAID/Bolivia projects, including the Bolivia Market Access and Poverty Alleviation (MAPA) II project and the Bolivia Rural Competitiveness Activity (ARCo). (See Annex IV)
13. BTBC II client firms should be given guidance in evaluating the feasibility and advantages of applying international certification and standards systems to their operations. As part of its overall marketing efforts, BTBC II should track and distribute to stakeholders information on market trends and requirements for certified products in different sectors.
14. BTBC II should take immediate steps to assist high-risk client firms to address pressing environmental and safety hazards. A rapid evaluation of other client firms not visited during the ER should be completed.
15. The BTBC II monitoring and evaluation system should include indicators to track environmental regulatory compliance, application of environmental management systems, buyer requirements, certification and audits of client operations, and exports to certified markets.
16. Investments in EMS, market certification and cleaner production should be eligible under any DCA facility planned during BTBC II.
17. Environmental, labor, and consumer safety issues should be a priority in the assistance and training that BTBC II will provide to Bolivian officials involved in regional and bilateral trade negotiations and setting national policies to increase competitiveness and exports of Bolivian enterprises. CNI could be a valuable partner in this effort given its involvement in helping Bolivian negotiators address environmental issues in Andean-American Free Trade Agreement negotiations.

18. The investment to implement the above recommendations and measures approved in the Initial Environmental Examination for BTBC I is estimated at \$435,000 over the life of BTBC II and is detailed in the illustrative budget in Section VI. (Total estimated budget for the BTBC II program is \$18.9 million) In some cases, these costs can be accounted for in established BTBC II operations.

Figure VI.1 Illustrative Budget for an Environmental Competitiveness Strategy

Full-time senior national environmental advisor (12 months initially)	\$ 40,000
Annual environmental reviews (three over life of project)	\$ 75,000
Short-term technical assistance*	TBD*
Implementation of user-friendly environmental screening and EMS decision-making tool (QWEST)**	\$ 25,000**
Specialized training for project staff and subcontractors (business operators, UPC, etc.)	\$ 25,000
Production and publication of simple EMS and cleaner production manuals for each main export sector	\$ 50,000
Other extension materials (design and publication)	\$ 10,000
Sponsorship of seminars, conferences, workshops, symposia, etc.	\$ 10,000
Direct support to client firms to cleaner production and energy audits, Environmental Management Systems, international certification and regulatory compliance, monitoring, etc. in initial competitive benchmarking and eventual implementation (50 percent cost-sharing with client firms)	\$ 200,000
Total	\$ 435,000

* As part of overall BTBC technical assistance program.

** Could be cost-shared with other USAID projects.

ANNEX I

SCOPE OF WORK

I. INTRODUCTION

USAID-Bolivia will conduct an annual environmental review of the Bolivian Trade and Business Competitiveness (BTBC) activities performed by the contractor Chemonics International Inc. The purpose of this study is to verify the compliance with program activities with 22 CFR Section 216. The report will include recommendations to monitor those impacts identified and the means to mitigate them. The results of this review will provide guidance on environmental issues for the second phase of BTBC.

II. BACKGROUND

In January 2003, USAID entered into a contract with Chemonics International for assistance in the implementation of the first phase of activities under the Mission's Bolivian Trade and Business Competitiveness (BTBC) Project. The BTBC is designed to provide technical and other assistance to overcome systemic and other constraints to trade and competitiveness, and improve the competitive production of goods and services with direct assistance to individual firms or groups of firms. The contract was for two years but was extended for six additional months to provide an overlap with activities under the second phase. The second phase will be a four-year contract involving broader long-term interventions.

Initially, BTBC activities emphasized assistance to expand benefits to Bolivia under the new Andean Trade Promotion and Drug Eradication Act (ATPDEA) and help prepare Bolivia for accession to FTAA and other international trade agreements. Over the longer term, BTBC will evolve into a program of activities to improve Bolivia's trade capacity and competitiveness on a broader scale.

The project is focused in two main areas:

- A) Improve the business environment and operative conditions in Bolivia to improve competitiveness and assist economic growth and exports. Factors that will contribute to this “productive environment” include:
- Effective institutional, legal, administrative, and regulatory conditions
 - Development of human resources, especially in foreign trade and negotiation
 - Coordination and collaboration between the private and public sectors, especially in those efforts oriented to the use of concessions offered by key commercial agreements like the ATPDEA.
- B) Stimulate competitive production of goods and services and private sector exports, particularly in the sectors of wood products, textiles, leather goods, and jewelry. The approach is practical, geared toward generating quick and significant results, clearly surpassing defined obstacles to cover existing market demands. BTBC is achieving this by creating linkages between producing companies and market opportunities at the national, regional, and international level, and by providing Bolivian SMEs with carefully targeted technical assistance in production, management, and marketing.

The Environmental Threshold Decision approved in July 12, 2002, for the BTBC project (LAC-IEE-02-34) issued the following decisions:

“1) A categorical exclusion for activities related to:

- Education, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.) per Section 216.2(c) (2)(i)
- Analyses, studies, academic or research workshops and meetings, per Section 216.2(c)(2)(iii)
- Matching, general support, and institutional support grants provided to private voluntary organizations (PVOs) to assist in financing programs where AID’s objective in providing such financing does not require knowledge of or control over the details of the specific activities conducted by the PVO, per Section 216 (c)(2)(xiii)

2) A Negative Determination is issued for all other interventions—particularly to those related to point B above, that will endeavor to eliminate constraints for selected businesses in the forestry/wood sector such as tourism and certain

textiles—based upon the understanding that this activity will: a) work to improve the overall business environment in Bolivia; b) seek to improve a firm’s profitability through the adoption of improved cleaner production technologies; and c) increase the application by business of environmental measures that ensure access to sophisticated and demanding markets for selected products, e.g., in certified tropical wood products. USAID/Bolivia will ensure that proposed interventions and commodity sector or products are screened carefully for their short-, medium-, and long-term impacts on employment generation, equity, environment and broad-based growth. USAID/ Bolivia will conduct an annual review on interventions affected by this negative determination and submit an annual report to the MEO for approval that demonstrates the application of these understandings.”

Since the BTBC project began technical assistance to the productive sector at the end of year 2003, the review needs to be performed at this time, prior to the completion of phase one of the program.

III. OBJECTIVES

The purpose of this Environmental Review (ER) is to comply with the Environmental Threshold Decision approved for the BTBC Project and delineate clear mitigation activities to assure full compliance with USAID regulations and Government of Bolivia laws and regulations. The ER will cover all activities defined under Phase I of the BTBC project. Results of the ER also will provide guidance on addressing environmental issues during implementation of phase two of BTBC.

IV. CONSULTANCY AND RELATIONSHIPS

The environmental specialist will be responsible for identifying and analyzing the environmental impact of activities performed under the BTBC Project. The specialist will also be responsible for suggesting measures which might be undertaken by the contractor to mitigate the identified environmental impacts. The report generated will serve as a guidance tool for the second phase of BTBC.

The specialist will be responsible for organizing the entire effort. He should have extensive knowledge of Reg 216 and USAID policies, as well as experience in productive activities related to the areas the project has been working on, such as the textile and apparel, wood manufacturing, leather, and jewelry sectors. The specialist should be able to travel inside the country and have access to the most representative activities selected for the review as per technical reports received of activities performed.

The selected specialist must be fluent in English and Spanish and possess excellent writing and document developing skills.

During the period of this assignment, the USAID Economic Opportunities Strategic Objective (EO SOT) team leader, cognizant technical officer (CTO) for BTBC, and the Mission environment officer will provide guidance as needed. The specialist will report to the EO SOT's team leader or his designee and the CTO.

V. WORK PLAN

The consultant is expected to carry the following activities:

- 1) Review project and USAID documentation and meet with: EO SOT team leader, CTO, the Mission environment officer, Chemonics team, and other actors as needed to fully understand the scope of the BTBC project (phases I and II). (2 work days)
- 2) Submit a detailed work plan and present it to the EO SOT team leader or his designee, the CTO, and the Mission environment officer within the first week for approval. The plan should map out activities, field visits, and the overall process to be used to develop the ER within the established time frame. (2 work days)
- 3) Carry out field visits, interviews, and documentation review to ensure the compliance of USAID environmental regulations in all BTBC activities during phase I. Define current practices within the processing operations that require changing or mitigation. As per Negative Determination, the Consultant should also: 1) assess program's ability to improve adoption of cleaner production technologies and increase application of environmental measures; and 2) ensure that interventions have been screened for their short-, medium-, and long- term impacts on environment. (10 work days)
- 4) Review the scope of work and work plan for phase two of BTBC and provide recommendations. (1 work day)
- 5) Assess BTBC administrative capacity in order to make recommendation on their training needs to make sure BTBC (phase II) complies with all USAID environmental rules and regulations. (1 work day)
- 6) Prepare a draft report and submit to the EO SOT team leader, the CTO, the Mission environment officer, and the Chemonics team, before the official presentation for discussion and reception of feedback. (3 work days)
- 7) Develop a final report and debriefing to USAID and Chemonics' staff with incorporation of recommendations and feedback.(3 work days)

VI. DELIVERABLES

Three deliverables are expected under this contract:

- 1) A detailed work plan.
- 2) A presentation to USAID and Chemonics personnel to discuss the draft report, delivered two days before. The draft report should include the analytical findings and recommendations.
- 3) A final report will be submitted to USAID before departure.

The work plan and draft report should be in English. However, the final report shall be written in English and Spanish and submitted in electronic and hard copy format. Four copies of each report will be required.

VII. LEVEL OF EFFORT

The estimated level of effort required to complete these tasks is about 22 days for one

consultant. The work will be conducted in La Paz, with several days to Cochabamba, Santa Cruz, and Tarija, as needed.

ANNEX II. MEETINGS AND SITE VISITS

FIRM/ENTITY	LOCAL	ACTIVITY/SECTOR	CONTACT PERSON	POSITION	DATE	ACCOMPANYING BTBC STAFF MEMBER
BTBC team meetings	La Paz	Competitiveness	Jules Lampell, Walter Nuñez	COP, DCOP	7/19/05 8/05/05	BTBC team
Centro de Promoción de Tecnologías mas Sostenibles	La Paz	Cleaner production	Carlos Arce	Director	7/21/05	Jose Montano
Universidad Católica Boliviana	La Paz	SME training	Marco Fernández	Director	7/21/05	Jose Montano
CANEB	La Paz	Export promotion	Jimena Loayza	General Manager	7/21/05	Jose Montano
Unidad de Productividad y Competitividad	La Paz	Competitiveness	Marcelo Barrón	Executive Director	7/21/05	
MABET	El Alto	Wood	Luis Calderón	Commerce and Projects Director	7/22/05	Jorge Loayza
SOEX	El Alto	Wood	Ángelo Sanjinez	General Manager	7/22/05	Jorge Loayza
REY WEAR	El Alto	Textiles	Nelson Escobar	Plant Manager	7/22/05	
COPROCA	El Alto	Fine textiles	Luis Ticona Reynaldo Cuba	General Manager Quality Control Manager	7/22/05	C. Cáceres
Cámara de Industria y Comercio de Santa Cruz –CAINCO	Sta. Cruz	Tourism and Services	Ricardo Ortiz	Assistant Manager	7/25/05	C. Cáceres
			Mario Herrera	Services Associate	7/25/05	C. Cáceres
Cámara de Exportadores de Santa Cruz-CADEX	Sta. Cruz	Exports	Juan Manuel Arias	General Manager	7/25/05	C. Cáceres
CONFECCIONES RECORD	Sta. Cruz	Textiles	Eva Engelbert	Vice President	7/25/05	C. Cáceres
Consejo Departamental de Competitividad	Sta. Cruz	Competitiveness	Richard Ortiz Sliva	Director	7/25/05	C. Cáceres
JHESEM	Sta. Cruz	Textiles	Cristina Salvatierra	General Manager	7/26/05	C. Cáceres
Centro Comerical Internacional	Sta. Cruz	Trade	Wilfredo Jurado	Chief Technicial Advisor	7/26/05	C. Cáceres
SOMAIN	Sta. Cruz	Madera	Wilfredo Rojo	General Manager	7/26/05	C. Cáceres
Muebles SAN JORGE	Sta. Cruz	Madera	Irma Cedeño	General Manager	7/26/05	C. Cáceres
CADEPIA	Sta. Cruz	SME	Aldo Zelada	Vice President	7/27/05	C. Cáceres
Universidad Provada de Santa Cruz	Sta. Cruz	Textiles	Cynthia Bojanic	Head, Chemical Laboratories	7/27/05	C. Cáceres
Centro de Asesoramiento y Consultaría Empresarial	Sta. Cruz	Consulting services	Mónica Rivero	Director	7/27/05	C. Cáceres
Cámara Departamental de Industria de Cochabamba	Cbba.	Private sector group	TBD	TBD	7/27/05	José Montañó

FIRM/ENTITY	LOCAL	ACTIVITY/SECTOR	CONTACT PERSON	POSITION	DATE	ACCOMPANYING BTBC STAFF MEMBER
Federación de Empresarios Privados	Cbba.	Private sector group	Ricardo Angulu	-	7/28/05	José Montaña
La Naturaleza S.A.	Cbba.	Natural teas	Alfredo Mier	General Manager	7/28/05	José Montaña
CADEPAI – Cochabamba	Cbba.	SME	Lug Edwin Espinoza Nilo Hermosa	General Manager Cleaner production	7/28/05	José Montaña
TRAILER	Cbba	Textiles	Alfonso Mange	Owner	7/29/05	
Sali Ltd.	Cbba.	Wood products	Jaime Rivero	Floor manager	7/29/05	José Montaña
Alfach	Cbba.	Textiles	Alfonso Choque	General Manager	7/29/05	José Montaña
MACAWS	Cbba.	Leather	Peter Weiss	General Manager	7/30/05	
Fundación PRODEM	La Paz	Finance	Jonny Fernández	Admin. Manager	8/01/05	C. Cáceres
FUNDA-PRO	La Paz	Finance	Alejandro Nuñez	Manager	8/01/05	C. Cáceres
FUNDES	La Paz	Finance	Antonio Salazar	Operations Manager	8/02/05	Jorge Loaysa
Cámara Nacional de Industria	La Paz	Industry group	Ninotschka Calderón	Under Director – Industrial Promotion	8/02/05	C. Cáceres
Texturbol	La Paz	Textiles	Victor Malky	General Manager	8/03/05	C. Cáceres
USAID	La Paz		Mike Kaiser Denise Fernández Ricardo Roca	EO – SOT Leader CTO – BTBC Natural Resources Specialist	8/03/05	Walter Nuñez
IBNORCA	La Paz	Certification and standards	Claudia Kuramoto Iris Soto	Coordinator – Norexport Head, Certification	8/04/05	C. Cáceres
Exportadores Bolivianos	La Paz	Jewelry	Camilo Poquechoque	General Manager	8/05/05	C. Cáceres

ANNEX III

QUALITY, WORKPLACE, ENVIRONMENT, AND SAFETY TOOL (QWEST)

INTRODUCTION AND SAMPLE QUESTIONNAIRE

QWEST is being developed as a Web-based application and diagnostic tool for projects. The tool consists of the questionnaire, accompanying suggested corrective actions, and the database that tracks progress toward improved operations. Once potential partners have completed the questionnaire, the application will tally their compliance/cost/competitiveness risk per the relevant industry and propose appropriate corrective actions.

Projects can use the QWEST tool to assess partners as they are identified and activities developed. Using the tool on a client level will highlight corrective actions that can be proactively built into the SOW for project-related assistance, whether a grant, training, STTA, procurement services, or other type of assistance.

The QWEST application will be available for project use in November 2005.

Sample questionnaire. Sections A-H below are questions that QWEST asks project staff to complete with a potential client's business/activity information. The QWEST application will evaluate responses to Sections D-H and provide suggested corrective actions. Corrective actions are not included below.

A. System Data

1. Date
2. User name

B. Client Data: Please fill in the contact information for the site you are assessing.

1. Organization Contact Information
2. Client Name
3. Client Title
4. Name of Client Organization
5. Name of Client Organization CEO
6. Name of Parent Organization (if applicable)
7. Address
8. Country
9. Telephone number
10. Fax number
11. Email

C. General Enterprise Information: Please select the applicable answer to the questions below. All questions must be filled in before proceeding to the next one.

1. Select type of enterprise:
Private Enterprise
Cooperative
Nongovernmental Organization
Public utility or service
Other
2. Enter type of enterprise (other):
3. Select type of industry:
Agrifood Processing
Business Development Services
Crop Production
Education/Training
Forestry
Hotels/Tourism
Manufacturing - Chemical
Manufacturing - Electrical
Manufacturing - Forest & Wood-products
Manufacturing - Garments & Textiles
Manufacturing - Metal

Medical/Health
Services
Transportation

4. Select industry aspects:
 - Bottling
 - Canning
 - Cold pressing
 - Dairy
 - Degreasing
 - Drying
 - Extruding
 - Farming
 - Fermentation
 - Finishing
 - Forging
 - Fuel Storage
 - Grading
 - Harvest
 - Irrigation
 - Milling
 - Mining
 - Painting
 - Pickling
 - Polishing
 - Power Generation
 - Pressing
 - Pulping
 - Refining
 - Sandblasting
 - Stripping
 - Tanning
 - Washing
 - Welding
 - Wood Preserving
 - Not Applicable
5. Select type of ownership:
 - Joint Venture Partnership
 - Limited Liability Company (LLC)
 - Public-Private Partnership
 - Other
6. Enter type of ownership (other):
7. Year established

8. List principal products:

9. Select export country/countries: (drop down list of countries)

D. *Management Attributes*: Please select the applicable answer to the questions below. These questions are designed to evaluate the level of formality of the organization's management structure.

1. Select number of employees at client site:

a.) 1-10

b.) 11-50

c.) 51-200

d.) 200+

2. Number of shifts worked at site:

One

Two

Three

3. Does the organization have an organizational management chart? Y/N

4. Do supervisory staff have written job descriptions? Y/N

5. Are there designated representatives for quality assurance? Y/N

6. Are there designated representatives for worker health and safety? Y/N

7. Are there designated representatives for environmental management or pollution control? Y/N

8. Are there designated management representatives for employee grievances? Y/N

9. Has the organization ever conducted a risk assessment in quality assurance? Y/N

10. Has the organization ever conducted an employee health and safety risk assessment? Y/N

11. Has the organization ever conducted an environmental risk assessment? Y/N

12. Does the organization conduct scheduled audits of quality? Y/N

13. Does the organization conduct scheduled audits of employee health and safety? Y/N

14. Does the organization conduct scheduled audits of environment management and pollution? Y/N
15. Does the organization have a written accident prevention plan and emergency evacuation procedure? Y/N
16. Does the organization maintain appropriate product specifications to assure product quality? Y/N
17. Does the organization maintain copies of local and current employee health and safety regulations? Y/N
18. Does the organization maintain copies of local and current environmental management and pollution regulations? Y/N
19. Does the organization routinely reject suppliers inputs based on quality deficiencies? Y/N
20. Does the organization routinely reject suppliers inputs based on lack of employee health and safety requirements? Y/N
21. Does the organization routinely reject suppliers inputs based environmental management systems? Y/N
22. Does the Organization have written policy statements that addresses Quality? Y/N
23. Does the Organization have written policy statements that addresses Environmental concerns? Y/N
24. Does the Organization have written policy statements that addresses Occupational Health & Safety? Y/N
25. Does the Organization have written policy statements that addresses Internal Code of Conduct? Y/N

E. Environmental Characterization: This section is intended to help managers assess the nature and scale of environmental and social impacts of anticipated activities. Most of the attributes required to determine the nature and scale of environmental impact should have been determined during the conduct of an initial environmental examination (IEE) which is legally required prior to project commitment. Please ensure that you have a copy of the IEE in hand at project outset in prior to reviewing individual activities.

1. Will the project support technical studies and activities and analyses that are involved in extractive industries (e.g., mining, forestry, hunting, fishing, etc.)? Y/N

2. Will the project support intermediate credit organizations including banks, other microfinance lenders, or NGOs? Y/N
3. Will the project support controlled experimentation? Y/N
4. Will the project support the development of irrigation perimeters? Y/N
5. Will the project support river basin management? Y/N
6. Will the project support the development of dams? Y/N
7. Will the project support the development of water impoundments? Y/N
8. Will the project support the development of river diversion? Y/N
9. Will the project support the development of sewerage projects? Y/N
10. Will the project support the development of large-scale potable water sources? Y/N
11. Will the project support the development of drainage projects? Y/N
12. Will the project support the development of large-scale agricultural mechanization? Y/N
13. Will the project support the development of new lands development? Y/N
14. Will the project support the development of land bunding or terracing? Y/N
15. Will the project support resettlement projects? Y/N
16. Will the project support the development of penetration road building? Y/N
17. Will the project support the development of road improvement? Y/N
18. Will the project support the development of power plants? Y/N
19. Will the project support the development of industrial plants?
20. Will the project support the agricultural pesticide use? Y/N
21. Will the project support the medical pesticide use? Y/N
22. Will the project support the veterinary pesticide use? Y/N
23. Will the project support exotic species introduction? Y/N

F. Production & Processing Site Description: Please select the applicable answer to the questions below. All questions must be filled in before proceeding to the next one.

1. Select the site's proximity to closest town:
0-1km
1-2km
Greater than 2km
2. Select the site's distance to nearest to nearest stream, river, lake:
0-1km
1-2km
Greater than 2km
3. Select the types of solid wastes are generated from the site: (Drop down list of wastes by relevant industry)
4. Select the types of liquid wastes are generated from the site: (Drop down list of wastes by relevant industry)
5. Select the types of air wastes are generated from the organization: (Drop down list of wastes by relevant industry)
6. Select how solid wastes are managed:
Collected
Land filled
Incinerated
Treated/Released
Septic system
Discharged to rivers
Made available to secondary markets
Equipment dismantled
Recycled
7. Select how liquid wastes are managed:
Collected
Land filled
Incinerated
Treated/Released
Septic system
Discharged to rivers
Made available to secondary markets
Recycled

8. Select how air wastes are managed:
Collected
Incinerated
Treated/Released

G. *Walk through Inspection*: First complete a site walk-through. Second, evaluate as best as possible the status of the following conditions. These responses can be completed as either acceptable or unacceptable.

1. Product quality deficiencies: Acceptable/Not Acceptable
2. General housekeeping problems: Acceptable/Not Acceptable
3. Evidence of chemical releases: Acceptable/Not Acceptable
4. Inadequate or incorrect product or hazardous chemical labeling:
Acceptable/Not Acceptable
5. Lack of safety warning signs: Acceptable/Not Acceptable
6. Improper segregation or storage of hazardous material and/or waste:
Acceptable/Not Acceptable
7. Leaking valves, lines, and containers: Acceptable/Not Acceptable
8. Available and use of personal protection equipment: Acceptable/Not
Acceptable
9. Inadequate machine guarding: Acceptable/Not Acceptable
10. Uncovered chemical/waste containers: Acceptable/Not Acceptable
11. Inadequate/incorrect emergency equipment: Acceptable/Not Acceptable
12. Improper lighting/ventilation: Acceptable/Not Acceptable
13. Inadequate or ineffective maintenance: Acceptable/Not Acceptable
14. Presence of uncontrolled physical, chemical, and biological hazards:
Acceptable/Not Acceptable
15. Fire suppression equipment: Acceptable/Not Acceptable
16. Other observations

H. *Chemonics Project Resource Allocation Strategy*: Please evaluate the type of assistance this client request from this USAID funded project.

1. What type of technical assistance is the client requesting from the project office?
Short-term technical advisory services
Short term management advisory services
Procurement services
2. What type of grants activities are being proposed in grants request?
Training
Procurement
Management
Financial systems
Long-term staffing
Short-term staffing
3. What type of procurement activities is the client requesting from the project office?
Agricultural products
Pesticides
Vehicles
Computer equipment
Other equipment over \$500 per unit
Other equipment under \$500 per unit
4. What type of services will be provided by the project office in a subcontract?
Technical advisory services
Management advisory services
Training
Financial systems

ANNEX IV

FIRMS ASSISTED BY BTBC I

Company	Location
<i>Cotton and synthetics</i>	
Alfach	Cochabamba
TRAILER	Cochabamba
CORCEL	Cochabamba
BATOS	Cochabamba
Anthony Jeans	Cochabamba
ASEA-MYTEX	Cochabamba
ROMAN	Cochabamba
JULYOS	Cochabamba
VAL FAL	La Paz
DINATEX	La Paz
Tres Colores	La Paz
TEXMABOL	La Paz
HOGARTEX	La Paz
Rey Wear	La Paz
TEXTUBOL	La Paz
Jeans Sport	La Paz
AMETEX	La Paz
MAQUIBOL	La Paz
BOGAMA	La Paz
BTX	Santa Cruz
MITSUBA	Santa Cruz

Company	Location
JHECCCEM	Santa Cruz
MAKAM	Santa Cruz
TORINO	Santa Cruz
IMAGEN	Santa Cruz
DIM's Jeans	Santa Cruz
Confecciones Record	Santa Cruz
ACOTAR	Tarija
<i>Fine Fibers</i>	
Milos International	La Paz
Origenes Bolivia	La Paz
ALTIFASHION	La Paz
ALTIFIBERS	La Paz
Knitted Apparel	La Paz
COPROCA	La Paz
Gloria Thaine	La Paz
Alpaca Style	La Paz
TERRALTAS	La Paz
INTIWARA	La Paz
Shalom	La Paz
ASARBOLSEM	La Paz
BCP Alpaca Design	La Paz
Lucana Knitt & Fashion	La Paz
FOTRAMA	Santa Cruz
<i>Wood Products</i>	
SOEX	La Paz
MABET	La Paz
IBEMA	Cochabamba
Mobilia	La Paz
Sali	Cochabamba
San Jorge	Santa Cruz
United Furniture	La Paz
Ultimate design	La Paz
PROMAD	La Paz
EcoWoods	La Paz
Mueblería Lopez	La Paz

Company	Location
Linea Rústica	La Paz
Schmidt Wood	La Paz
San Javier	La Paz
MADECOM	La Paz
SOMAIN	Santa Cruz
Chinga Decoraciones	Santa Cruz
San Joaquin	Santa Cruz
La Italiana	Santa Cruz
Muebles Hurtado	Santa Cruz
CIMAL	Santa Cruz
BLT	Santa Cruz
KOABA	Santa Cruz
SAGUSA	Pando
Montana	Tarija
IMAPA	Pando
Carpintería Diluvio	Tarija
Carpintería Quiroga	Tarija
Carpintería Diaz	Tarija
Carpintería Choque	Tarija
Industria de Metal y Madera Ramírez	Tarija
Carpintería Castanon	Tarija
COMAS	Tarija
Leather Goods	
MACAWS	Cochabamba
PIELBO	Cochabamba
Genuine Top Leather	Cochabamba
Jewelry	
Exportadores Bolivianos	La Paz
Minerales y Metales	Santa Cruz
CECADEM	El Alto
Foodstuffs	
La Naturaleza	Cochabamba

